POPULAR
Computing
WEEKLY

Only 50p.

10–16 April 1987

Vol 6 No 15

IBM dictates new industry standard

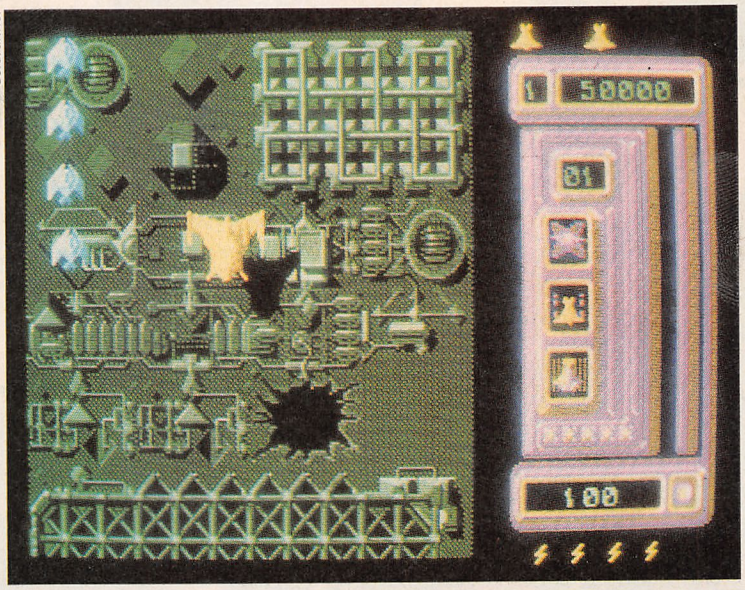
Details of new machines – p4

FEATURES

Gold Runner – ST action

Whatever happened to computer games?

An appraisal of the current state of the art

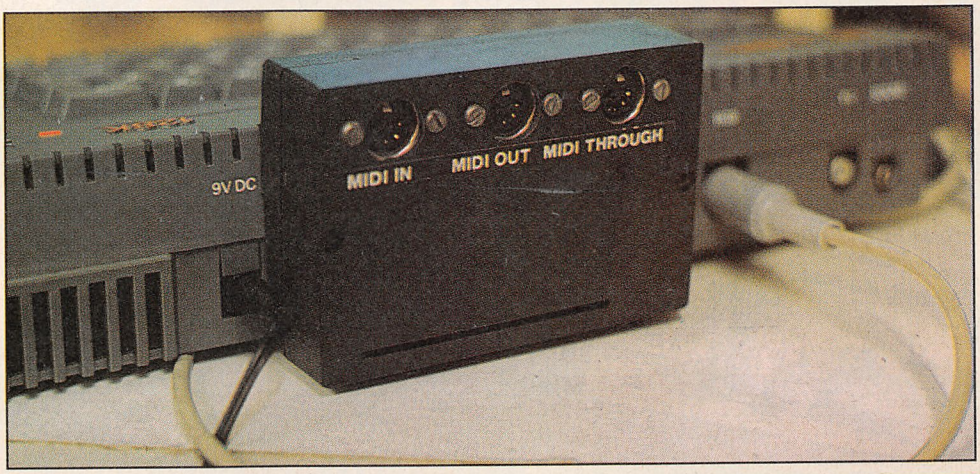


Goldrunner

HARDWARE

Cheetah's Midi interface

More music for your Spectrum



Is This Really Auf Wiedersehen Monty?

Fantastic full colour wall poster only 99p. see pack for details. (Poster free with every Auf Wiedersehen Monty purchased at branches of WH Smith)

FREE Lapel Badge with all games

MSX Spectrum 48K tape £7.99

CBM64/128 tape £9.99, disk £14.99

Amstrad tape £9.99, disk £14.99

GREMLIN

Gremlin Graphics Software Limited, Alpha House, 10 Carver Street, Sheffield S1 4FS. Tel: 0742 753423

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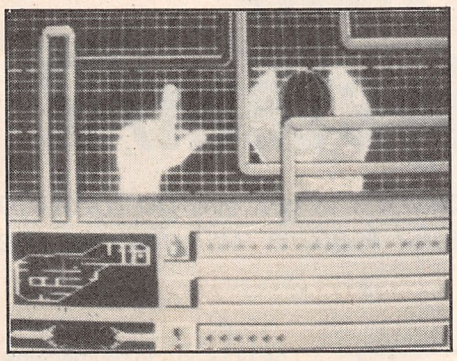

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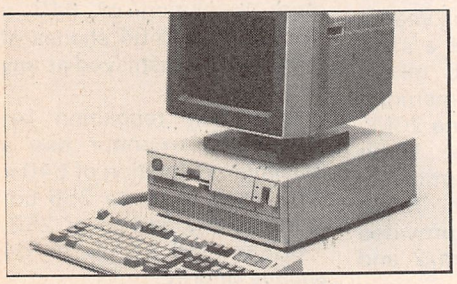

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© Sunshine Publications Ltd 1987. ISSN 0265-0509

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ABC

How to submit articles Articles which are submitted for publication should not be more than 2000 words long. The articles, and any accompanying programs, should be original. It is breaking the law of copyright to copy programs out of other magazines and submit them here – so please do not be tempted. We cannot guarantee to return your programs – so please do not send your only copy. **Accuracy** *Popular Computing Weekly* cannot accept any responsibility for any errors in programs we publish, although we will always try our best to make sure programs work.

'New era' begins as IBM launches Personal System/2

Last week saw IBM's biggest announcement for five years. This week we go through the major products, and next week a News Analysis special feature will discuss the impact of Personal System/2

IBM finally launched its new family of personal computers, the Personal System/2 last week.

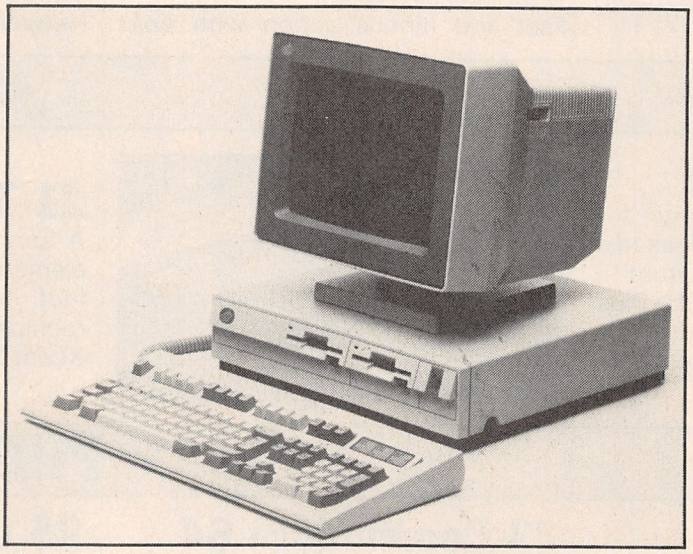
The worldwide announcement, which had been eagerly anticipated by industry, press and users alike, covers PCs, monitors, software, optical storage, and printers.

There were a few surprises too. First, IBM is reducing the price of the XT by 25 per cent, to around £1900 including VAT.

Second, IBM Operating System/2 will not be available until the first quarter of next year.

This is the new operating system intended as the company's standard multi-application operating system for the new models and the existing AT and XT286.

Users will use IBM PC DOS 3.3 on the new machines in the meantime.



Model 30.002, keyboard & Mono display 8503

Standard

So what is new about the machines? As was widely predicted, the new machines are made using surface-mount technology (SMT). This facility is part of the manufacturing plant at Greenock, near Glasgow, which will make Personal System/2 machines for Europe, Africa and the Middle East.

SMT enables more components to be fitted onto smaller boards. IBM director Brian Utley explained the effect of this development.

"Many of the options that before had to be purchased separately as add-on adapter cards, are now included as standard – across the whole range," he said.

There are four basic models, with a total of eight variants to the range. Model 30 uses a version of the existing IBM PC bus modified to support a 16-bit data path between the processor and memory, while Models 50, 60 and 80 use a new 32-bit architecture, called MicroChannel.

This is designed to provide faster performance – up to 30MHz – without exceeding European electromagnetic radiation emission limits.

All models use the new IBM standard 3½-inch diskettes, and it is understood that several software manufacturers are already catering for the new format.

Alternative

The 8MHz 8086-based Model 30 is designed as a replacement for the XT, while having "double" its power. The base model has two 720Kb 3½-inch diskette drives, while an alternative uses one 3½-inch drive and a 20Mb hard disc. Both models feature 640K of RAM as standard.

There are three eight-bit expansion slots, and it operates under DOS 3.3. Model 30 will be available through the IBM Dealer Network later this month and prices will start from £1,300, plus £230 for a monochrome monitor.

Most of the changes come with the Intel 80286 and 80386 based machines, which will be released from July to the end of this year.

The Model 50 has a standard 10Mhz 80286 microprocessor with 1Mb memory, one 3½-inch drive, one 20Mb hard disc, and three 16-bit expansion slots. Memory is expandable to 7Mb. Multitasking capability is provided by Operating System/2 and IBM TopView 1.12.

Variations include hard disc storage of up to 115Mb, and there are seven 16 bit expansion slots, providing up to 15Mb user memory.

Minicomputer

The three Model 80 machines are the stars of last week's announcement. IBM claims the Model 80 "offers minicomputer function at a microcomputer price."

The floor-standing machine is available in three versions offering different hard disc storage capacities of up to 230Mb. All use the Intel 80386 processor, the two lower models at a speed of 16Mhz and the top model at 20Mhz.

In addition to the new machines, IBM also announced its 3363 Optical Disk Drive, which provides up to 200Mb write-once, read-many times (WORM) storage on a 5¼-inch removable disc.

The drive is attached to the machine via a controller card, and each card can support up to two drives equivalent to 400Mb. Up to four cards can be installed in Models 60 and 80, allowing up to eight drives, providing 1.6 Gigabytes (Gb) storage.

Christmas

A new range of monitors and printers was also announced. The 12-inch monochrome monitor has a maximum resolution of 640 x 480, and up to 64 shades of grey may be displayed at any one time.

A medium resolution 14-inch colour monitor has a maximum resolution of 640 x 480 pixels in up to 256 colours from a palette of 262, 144, as well as up to 64 shades of grey.

The 8513 is a high-resolution 12-inch colour display, while the 8514 is a 16-inch high resolution colour monitor with a maximum resolution of 1024 x 768 pixels.

All the monitors attach directly to each of the system units in the Personal System/2.

Other models will be released throughout the year with the top-range Model 80s not expected much before Christmas.

Acorn profits no big deal, says City

ACORN, the Olivetti subsidiary micro group, has announced 1986 profits of £1.03 million. This follows a £2.94 million loss in the last six months of 1985.

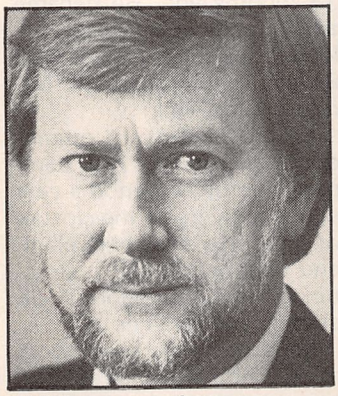
But City sources are understood to be disappointed with the result, and the share price had dropped 16 points by the end of the day following the announcement.

The turnaround is understood to be due to increased sales of the Master 128. Acorn MD Brian Long commented: "The Acorn BBC Master 128 was intended to be the workhorse of the education sector and is has lived up to expectations."

But although sales are up by 38 per cent to nearly £47 million, and the profits follow a very bad first half, nearly half the profits – £460,000 – are an exceptional item. That means a one-off in this case, profits from the sale of investments.

City analysts had in fact been looking for profits double those announced last week. It is believed the disappointing results are due to the poor sales of the Master Compact.

Acorn has had great difficulties in the past, and was taken over by Olivetti two years ago. The Italian electronics giant currently has a 79 per cent stake in the company.



LONG: expectations

"The improvement was accomplished during a period in which heavy expenditure was incurred on new product launches as well as continuing investment in future product creation and advanced research and development," Acorn chairman Bruno Soggiu commented.

"This does not mean that there is room for complacency. Current products are selling sell and we expect them to continue to provide a solid base to Acorn's activities."

Chief among those activities is the launch later this year of a range of machines based on Acorn's fast and inexpensive 32-bit RISC (reduced instruction set computer) microprocessor. The City won't be impressed unless that performs well for the company in 1987.

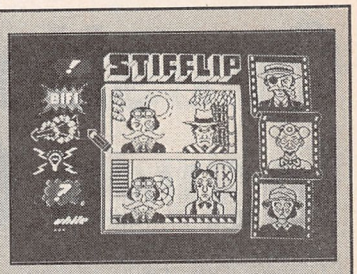
US, German titles for Robtek label

ROBTEK has announced a new label, Diamond Software. The label will be handling games by Golden Games of West Germany, and BCI and Parker Brothers of the USA.

The first release on Diamond, *Hollywood Poker,* will be available for the C64/128, ST, Amiga and Spectrum "in the second week of April."

Details from Robtek, Unit 4, Isleworth Business Complex, St John's Road, Isleworth, Middx TW7 6NL.

Software Hotlines



ONLY a few years ago, you had to keep your copy of *Dungeons and Dragons* well hidden, or be pigeon-holed somewhere between the Loony Left and members of the Sealed Knot in terms of eccentricity – but it's an interesting fact that *D&D* (and RPG's in general) have played an influential part in the development of arcade and computer games.

Undoubtedly, *D&D* spawned many an idea in a programmer's mind that saw fruit on the monitors of the masses. And now the new generation of RPG's have started to have their effect. *Call of Cathulu* is probably the fastest growing RPG, based upon the works of H P Lovecraft.

This game beautifully conjures up a 20's/30's America filled with secret societies (all manned by pillars of the community wearing the appropriate silly costumes), usually involved with the worship of strange 'dark forces'. And lo and behold, if there aren't three new coin-ops that mirror that genre exactly.

Rolling Thunder from **Namoco** has some wonderful graphics, in which you play the part of an FBI agent (complete with brown raincoat) who infiltrates the inner sanctum of such a society. *Psycho Soldier* is another (from the relatively unknown **SNK**) with *Shackled* from **Data East** managing to combine these elements with *Gauntlet* and *Nemesis!* Work that one out . . . expect the home computer versions soon . . . meanwhile how about some British hackers programming something with a little more English flavour? Like *Mason Attack?*

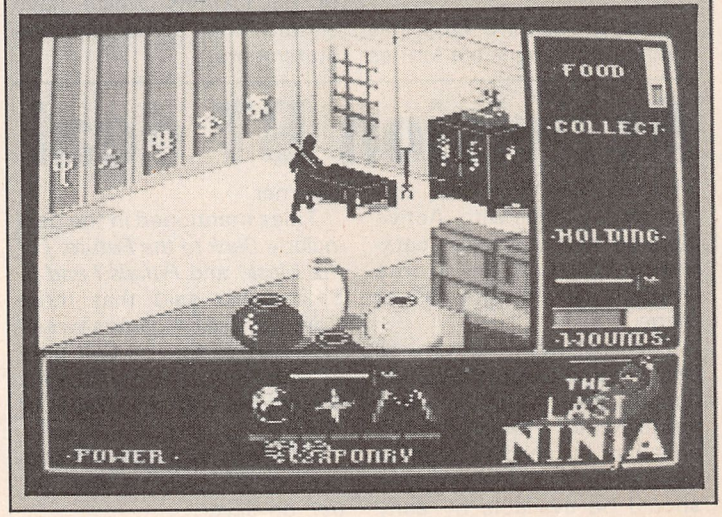
Palace Software have just announced the imminent release of *Barbarian.* Programmed by Steve Brown, the lad with *Cauldrons I* and *II* already under his belt. It includes a sophisticated sword fighting arcade hit, as well as a questy section to save the girl.

Palace did send us a picture of Steve, along with a scantily clad Page 3 girl, Maria Whittaker – but because we're anti-sexist, anti-racist, wholemeal and generally cuddly, we decided to print the shot of their next release, *Stifflip & Co.* (above) instead.

Below, an actual screen shot of *The Last Ninja* on the 64, scheduled for release on 1st May be System 3.

Poor old Mark Cale, System 3 MD, does seem to have got himself a reputation of late delivery of the goodies – not helped by commissioning authors who live the other side of the continent. Still, Hungarian-based Andromeda are off the case now and John Tweedy and Hugh Riley seem to have doen a creditable job. Egèszsègère boys.

John Cook

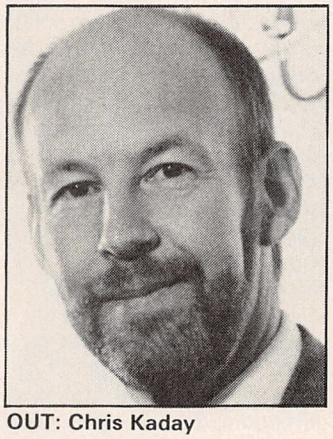


Questions as Kaday leaves Commodore UK

COMMODORE UK's managing director, Chris Kaday, has resigned from the company.

The reasons for his sudden departure (he apparently announced his resignation and left the company on the same day, March 31) are still unclear. A spokesman for Commodore said, "He has left to pursue other interests, and I'm sure he will emerge again in due course."

Commodore is now looking for a new managing director, with Ernest Tarien from Commodore Germany coming to the UK as acting MD in the interim period. Kristian Andersen, director of European marketing and sales for Commodore Electronics, will be taking on responsibility for UK marketing.



OUT: Chris Kaday

Chris Kaday joined Commodore as marketing manager 18 months ago. He became acting general manager following the departure of Nick Bessey, and gained the MD role late last year.

He presided over Commodore UK during the company's troubled period a year ago, and oversaw the closure of the Corby assembly plant, and contraction and restructuring of Commodore's UK staffing and facilities.

Kaday's most recent work at Commodore was the launch of the new A500 and A2000 Amigas last month.

Amstrad slams BBC over PC1512

AMSTRAD'S anger at press treatment of its PC1512 came to a head last week with the issue of a libel writ against the BBC, prompted by an article in the BBC's house journal, *Ariel,* which questioned the safety of the PC1512 range.

The BBC settled the case straight away, paying Amstrad's costs and publishing an apology in *Ariel*.

The Amstrad PC 1512 has been dogged by scare stories in the press ever since its launch in September 1986. These include the now notorious reports of overheating.

Amstrad chairman Alan Sugar has recently said: "We are fed up with third parties starting spiteful rumours with the intention of harming Amstrad's success in the market."

"We are contemplating legal action against a number of publications which have carried the same libellous statements."

Activision BT deal

TELECOMSOFT has announced a deal with Activision to release back catalogue Activision items through its budget Silver range.

The deal, which covers all territories except the USA, Japan and Australia, was secured by "a very fair advance," according to Silver boss Chris Smith. First titles should be available by early summer.

Titles mentioned in the deal include *Back to the Future, I of the Mask,* and *Pitfalls I and II.* Smith also said that three Commodore 64 games would be available for the first time in Europe – *Breakstreet, Futureball* and *Pyramids of Time.*

This follows the recent success of Activision's *Park Patrol,* on Silver.

Have BBC, will travel

ARE you young, presentable and articulate? Got a driving licence? Are you familiar with the BBC Micro?

If that sounds just like you, somebody, somewhere, wants to lavish large amounts of money on you.

Computer recruitment firm Inverdata Computer Resources is currently looking for such a person. What it wants is someone with programming experience in BBC Basic, Pascal, Fortran, C or assembler.

The firm says it would like it even more if you know computer graphics pretty well, and "some knowledge of the medical world" is desirable, it adds.

In return for this personality profile, the client – unknown – is offering up to £18,000 a year, plus a car.

Sounds like a better deal than writing a "zap the microbes" arcade game.

Get your application in to Kostas Jarvis at Inverdata, Inverdata House, 1 Great Eastern Street, London EC2A 3TJ.

DIARY DATES

APRIL

11 April
Dragon Computer Show
Ossett Town Hall, nr Wakefield, W Yorks
Details: Software, hardware and demonstrations for Dragon users
Price: £1 adults, 50p children and OAPs
Organiser: John Penn, 04203 5970

24–26 April
The Atari Computer Show
Novotel, London W6
Details: First chance for Atari to show off exciting new strategy
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

MAY

2–3 May
First Ideal Microcomputer Show
Kensington Exhibition Centre
Details: Software, hardware, peripherals for consumer users
Price: £3 on door, £2 in advance
Organiser: RAMCO International Exhibitions, 01-906 3363

8–10 May
The Electron & BBC Micro User Show
New Horticultural Hall, London
Details: Software, hardware and peripherals for Acorn's micros
Price: £3 adult, £2 children, £1 discount for advance booking
Organiser: Database Exhibitions, 061-456 8835

JUNE

12–14 June
Commodore Show
Novotel, Hammersmith
Details: First public showing of A500 and A2000 Amigas.
Price: £3 adult, £2 children
Organiser: Database Exhibitions, 061-456 2991

Prices, dates and venues of shows can vary, and you are therefore strongly advised to check with the show organiser before attending. *Popular Computing Weekly* cannot accept responsibility for any alterations to show arrangements made by the organiser.

Don't miss this launchpad for all that's new in Atari computing

ATARI COMPUTER SHOW

10am-6pm Friday, April 24
10am-6pm Saturday, April 25
10am-4pm Sunday, April 26

Champagne Suite, Novotel, Hammersmith, London

Experts are convinced 1987 will be the Year of Atari – thanks to exciting developments in the ST range, coupled with a renewed commitment by Atari to support and encourage the ever-popular Atari 8-bit range.

New hardware enhancements, and hundreds of new software packages, testify to how writers and developers throughout Britain and the USA are creating new ways of exploiting the power of Atari computers – and they'll all be on display at the April Atari Computer Show.

Send for your advance tickets now – and SAVE £1 a head!

Advance ticket order

POST TO: Atari Computer Show Tickets, Europa House, 68 Chester Road, Hazel Grove, Stockport SK7 5NY

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☐ Under-16s tickets at £1 (save £1) ..... £ ____

TOTAL £ ____

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Admission at door:
£3 (adults), £2 (under 16s)

ATARI COMPUTER SHOW

Champagne Suite, Novotel, Hammersmith, London
April 24-26, 1987

Name .....

Address .....

.....

..... Signed .....

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PRESTEL ORDERS: KEY *89, THEN 614568383
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Please quote credit card number and full address +

PC

Letters

The ST Club

Through the columns of your magazine I should like to let your readers know about the ST Club.

One year membership and 12 newsletters costs just £5; the bi-monthly disc magazine is an additional £17.50 for six issues.

The club encourages members to contribute their software to the public domain, and pass on contributions to the authors of shareware. PD discs from the library are available to members for an all-inclusive cost of £3.20 to £3.50 per disc.

Atari St users are invited to write for a complimentary copy of the latest ST Club newsletter and the PD library catalogue. Please send a large stamped addressed envelope, at least nine by six inches, or a loose stamp, to ST Club, PO Box 20, Hertford SG13 8NN.

Paul Glover
ST Club

Commodore condemned

I am sure there must be quite a few people around the country that could repeat Mr J Masterson's comments word for word (Letters, March 27).

We sent in a Commodore 1901 monitor for warranty repair on November 25 last year and we are still awaiting its return. Phone calls to Verran always bring the same response about waiting for parts. I don't doubt that they are telling the truth, but isn't it time that somebody pulled their finger out and took some positive steps to rectify the situation? It is the responsibility of a manufacturer to be able to supply parts for their products and it seems that Commodore falls very short of the mark on that score.

John Anderson
Long Eaton Software Centre

Setting the record straight

Following Mr Chernier's letter in *Popular,* March 6 concerning the quality of advice given in Kenn Garroch's column. I regret to say that I feel moved to follow this with some further criticism.

I was a bit doubtful about advice in a recent column to the effect that the two inputs on the 1901 monitor were for sound and video.

The advice given to Mr Colin Tinto in that issue has finally moved me to write. First, Mr Garroch states that the only way to get 80 columns out of the Commodore 128 is to use the RGB port with an RGB monitor. This is doubly misleading. First, the 80 column colour output on the 128 is not RGB but RGB1.

There are problems in getting it to work with a standard RGB monitor. I don't know the gory details but, I believe it has something to do with phasing. However, the good news is that 80 column mode can be used perfectly well in monochrome or a standard mono monitor.

If you must have colour, Horasoft does various converters including, I believe, RGB1 to composite, but as Mr Garroch says, the results probably won't be legible.

The situation with regard to CP/M or the 1541 disc drive is more complicated, but certainly not as Mr Garroch suggests. Very nearly all existing CP/M software on $5\frac{1}{4}$ inch discs, is written in a variety on formats, but always using the MFM recording system. Commodore drives, including the 1541 use the very different GCR system.

The 1570 and 1571 drives normally also use GCR, which is why the 128 in native 128 mode will happily load, and often if using Basic, run C64 programs. These newer drives however, have an additional ability to read various MFM formats, enabling them to run software recorded for other machines.

Mr Brisbourne
Wigan, Lancs

Kenn Garroch replies: OK, so I can't know everything. The comment about the monitors are not quite true however. The 1901 can be used with any PAL composite video input if the signal is fed into both the chroma and luma sockets. A converter for RGB1 to composite PAL should produce a quite readable picture on a quality colour composite monitor.

It won't, however, give good results on a TV since the signal would also have to be modulated into a UHF carrier before being fed into the aerial socket.

My thanks to Mr Brisbourne for the rest of his advice since I cannot show everything, I welcome letters from readers who wish to add (or subtract) from any of the answers given.

Puzzle

Puzzle No 253

Jamie and Ben were discussing the question of probabilities. Jamie had ten pieces of card, each bearing a different digit from zero to nine.

"Suppose," said Jamie, "that we turn these cards face down and mix them up. Now, you select any three cards at random and turn them face up."

Ben did as Jamie requested.

"Now, I arrange the three digits into a three-digit number. If this number is exactly divisible by thirteen then I win, otherwise you win."

Ben considered for a moment and then asked, "What are the odds?"

"Well," replied Jamie, "as only one thirteenth of all numbers are exactly divisible by thirteen I should say that the odds are in your favour, so I propose that if I stake 10 pence, you must give me one pound if I'm successful. That way the odds will still be to your advantage."

Ben was about to take up the bet when he realised that for each set of three cards selected, Jamie had a number of possible ways in which to arrange them, and that providing that he could divide rapidly by thirteen he could shorten the odds.

Can you determine what the correct odds would be?

Solution to Puzzle No 248

The numbers were: 83 (prime), 729 (the cube of 9), and 5041 (71 squared). This leaves the digit 6 remaining.

The data lines contain the 18 two digit primes which do not contain any duplicated digit (11) nor the digit 6 (61 and 67). The only possible three digit cubes are the cubes of integers in the range 5 to 9, although 7 can be excluded as its cube, (343), contains a duplicated digit.

As each successive cube is generated, it is converted to string format together with the current prime number under test and the subroutine is used to check for duplication of digits within the two numbers. The subroutine also tests to ensure that the digit 6 is not in the value.

A flag (FL) is set to value 1 if the number fails the test. For each successful test a similar series of squares is generated. These must be squares of numbers in the range 32 to 99 in order to give the required four digits.

Each square is then converted to a string variable and is added on to the two numbers already tested. The subroutine is used again to repeat the necessary tests.

Any value passing all tests is printed out.

Winner of Puzzle 248

This week's winner is M W Peters, of Blandford, Dorset, who will receive £10.

Rules

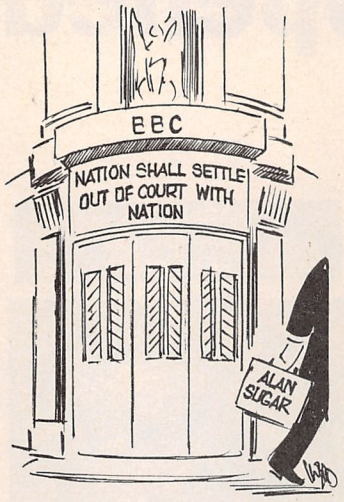
The closing date for Puzzle 253 is April 30. Answers should include a program listing if possible.

```
>
  100 RESTORE
  110 FOR N=1 TO 18:READ P:P$=STR$(P)
  120 FOR C=5 TO 9:IF C=7 THEN C=8
  130 C$=STR$(C*C*C)
  140 Z$=C$+P$
  150 GOSUB 300
  160 IF FL=1 THEN 270
  170 FOR S=32 TO 99
  180 S$=STR$(S*S)
  190 Z$=C$+P$+S$
  200 GOSUB 300
  210 IF FL=1 THEN 260
  220 T=0:FOR F=1 TO 9
  230 T=T+VAL(MID$(Z$,F,1))
  240 NEXT F
  250 PRINT "6";"/";P$;"/";C$;"/";S$
  260 NEXT S
  270 NEXT C
  280 NEXT N
  290 END
  300 REM Check Digits Subr.
  310 FL=0:L=LEN(Z$)
  320 FOR F=1 TO L
  330 IF MID$(Z$,F,1)="6" THEN FL=1:F=L
  340 NEXT F
  350 IF FL=1 THEN 400
  360 FOR F=1 TO L-1
  370 FOR G=F+1 TO L
  380 IF MID$(Z$,F,1)=MID$(Z$,G,1)THEN FL=1
  390 NEXT G:NEXT F
  400 RETURN
 1000 DATA 13,17,19,23,29
 1010 DATA 31,37,41,43,47
 1020 DATA 53,59,71,73,79
 1030 DATA 83,89,97
```

Disenchanted users

I would like to offer my experiences as a "first time user" of computers, for comment by anyone (either within the industry or outside it) who would like to agree or disagree with me.

At the end of last year, I decided that I could no longer ignore computers. Because I wanted to buy a machine that wasn't going to become obsolete overnight, I bought an Atari 520STM. A good games machine and "PC compatible". So I was told, anyway: "That means it'll read IBM files, does it? We've got one of them at work?" "*Certainly,* sir!" Remember this bit.



Great! It had 16 bits of something that everybody said was a Very Good Thing to have 16 bits of, and the few games I bought to get things moving sure loaded quick, had plenty of interesting features and fast response.

The first doubts set in at the beginning of January, when the price suddenly fell by £150 on £400. Ouch!

Also, by now I was getting a bit adventurous and trying to read the manual as a means of finding out what the other items did on the system disc.

"ST Basic and ST Logo are programming languages and their manuals are included." (handbook, p3) No ST Logo manual, no examples of this mysterious device in the handbook.

"*Neo.Prg* and *Slideneo.Prg* together comprise the Neochrome paint and slide show program. The neochrome manual is included." No it isn't.

What about *1st Word,* the Word Processor program that is supposed to be "bundled" with the machine?

Ring the Dealer. "If it's not in the box Atari doesn't do it any more."

Oh. So what about the little problem with the IBM files?

"What little problem?"

The problem of how you get $5\frac{1}{4}$" discs into a $3\frac{1}{2}$" hole in the disc drive.

Silence.

To cut a long story short, this discussion continued for some time, covering the topics of disc drives, connectors, and finally IBM emulators. (Short pause while hardened computer pros stop falling about with mirth and regain their composure.)

By now I had become confused. If Atari referred to manuals in the machine's official handbook, it didn't necessarily mean that they were there. If it included a program on the system disc, the expectation is that you use something akin to the Vulcan mind probe to find out what it does and how to use it. If they promise that it will read IBM files, it won't.

This has left me with a number of rapidly-forming conclusions, nay, suspicions:

1. The machine is basically a good 'un.
2. Atari doesn't know where to aim it – business or games, kiddy toy or serious home applications.
3. The software people still don't know whether to treat it seriously either.
4. I think it will do the lot, if the software becomes competitively priced, noting that Gallup consider that "probably in excess of two thirds of all computer games are sold at a £1.99 price point" (another short pause whilst a shudder runs through the ranks of the aforementioned hardened computer pros).

Judged by the standards of any other industry, I consider the above facts to represent a marketing shambles. Kids can't afford the games, the average home micro user doesn't need a million cell square spreadsheet (where's the Atari version of *Mini Office II*?) and business users look with growing envy and incredulity at the plummeting prices for PC software following the arrival of the Amstrad 1512.

D W Snelson
Stockport
(This letter was edited for length)

March of the black queen

This week, in Game One of the Readers vs *Colossus* chess tournament, the Readers, playing black, chose a move which advanced the queen from b6–d4, attacking the displaced white knight on a4 (see diagram below for details).

Colossus has replied by advancing its c column pawn, thus defending the knight and kicking the Readers queen again.

Making moves

What do you think the Readers team should do now? Send your suggested Readers move to *either* Inter-Mediates (*Popular* Chess), Freepost, Sawbridgeworth, Herts CM21 9YA (you do not need to use a stamp with this address), *or Popular* Chess, Unit 2, The Maltings, Sawbridgeworth, Herts CM21 0PG (with a stamp).

Please note that if you use Freepost, your entries must be posted promptly – Freepost is slower than paid-for mail. All entries must reach either address by Wednesday, April 15.

The move which gets the most votes will be entered into the game. Results and *Colossus*'s response will be published in two weeks' time.

Prizes

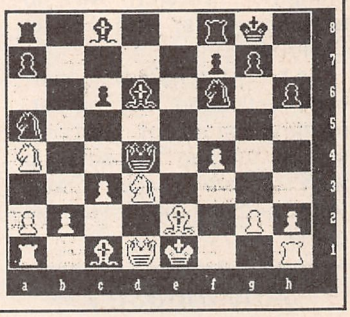
A British Museum reproduction Arran chess set will go to the person suggesting the most accepted moves at the end of the game. Five copies of *Colossus Chess 4* (available for most popular micros) will go to the most consistent entrants for the duration of the game.

Next week, we return to Game Two, where the Readers are playing white.

Game One

The moves so far:

1	Pe2–e4	Pe7–e5
2	Ng1–f3	Nb8–c6
3	Bf1–c4	Ng8–f6
4	Nf3–g5	Pd7–d5
5	Pe4xd5	Nc6–a5
6	Bc4–b5+	Pc7–c6
7	Pd5xc6	Pb7xc6
8	Bb5–e2	Ph7–h6
9	Ng5–f3	Pe5–e4
10	Nf3–e5	Bf8–d6
11	Pd2–d4	Pe4–d3 (en passant)
12	Ne5xd3	Qd8–c7
13	Nb1–c3	Ke8–g8 o–o
14	Pf2–f4	Qc7–b6
15	Nc3–a4	Qb6–d4
16	Pc2–c3	?



We're sorry but *Popular Computing Weekly* cannot guarantee to reply to *all* letters requesting a personal answer. It helps us enormously if readers are prepared to have general queries answered on these pages, so, if possible, please do not send SAEs.

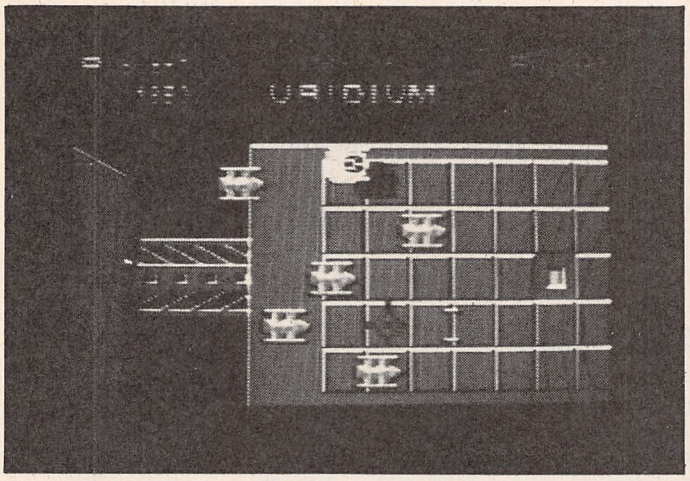
Popular Computing Weekly/ Voltex Electronics special Teletext Adaptor offer Token No. 2

The second of two tokens you need to take part in the Popular/Voltex Teletext Adaptor offer.

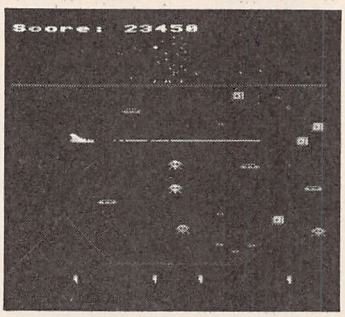
Details, along with the first token and order form were published in last week's issue of *Popular Computing Weekly.*

The TTX 2000S. It is. Are you?

Whatever happened to the



Left: Uridium
Below: Defender on the BBC



In the 20 or so years that have passed since Space Wars and Adventure opened the floodgates to computer game writing, has the game evolved as well as

The history of computer games isn't hard to trace. The Adam and Eve of the whole genre can be accurately identified.

Back in the 1960s, there were two great centres of computer research: MIT in Massachusetts, and SRI in California.

At MIT, the hackers – perhaps reflecting the harder, military nature of their research funding – came up with a game called *Space Wars,* perhaps the first arcade game.

> *"Any industry – book fiction, film, consists largely of second-rate products. Why should computer games be any different?"*

At SRI, again perhaps reflecting the more laid-back attitudes of California, the hackers came up with a game called *Adventure.*

In the Seventies, the main years of the video arcade boom, we had the forerunners of many of the other computer games around today. *Space Invaders* and *Galaxians* are virtually identical to all modern vertically scrolling shoot 'em ups. *Scramble* and *Defender* did the same for horizontal scrollers. *Donkey Kong* was the grand-daddy of platforms and ladders games.

The hardware of the personal computer has developed to levels those hackers of the Sixties may never have dreamed possible.

Their early ambitions – of putting computer power in the hands of ordinary individuals – has been realised. And vast numbers of computer owners are now practising the craft of software authorship.

But the end result of these developments has been to produce a depressing mass of ho-hum software.

Of course, that was only to be expected. I think it was science fiction author Theodore Sturgeon who, when defending his art, formulated the 90 Per Cent Law: "Yes, 90 per cent of science fiction is crap, but then 90 per cent of everything is crap".

Any industry – book fiction, film, music, television – consists largely of second-rate products. Why should computer games be any different?

It just seems to me that we, the computer users, are not getting our ten per cent.

A glance at the best-selling software list for 1986 makes depressing reading. Ignoring, for the moment, budget titles which accounted for nearly half of the top 100 – 44 titles in fact – the remainder are tediously predictable.

Fourteen products were sports simulations, 12 were arcade clones, ten were compilations and a further half dozen were martial arts games. And remember, we're excluding the budget titles which include their own crop of martial arts clones, sports simulations, and arcade rip-offs.

When you add in those budget titles you get about 90 products. Aha, you think. Now we get to the ten per cent, the cream at the top.

Well no. Because the remaining ten per cent includes licensed products like *Transformers,* and *Trivial Pursuit,* unclassifiable efforts like Durell's *Turbo Esprit* and so on.

> *"I think it was science fiction, author Theodore Sturgeon who, when defending his art, formulated the 90 per cent law: 'Yes, 90 per cent of science fiction is crap but then 90 per cent of everything is crap'"*

Out of the entire top 100 titles, there are perhaps half a dozen that could qualify on grounds of excellence and originality: *Mercenary, Elite, Infiltrator, Uridium, Spellbound,* and the veteran *Football Manager.*

Look further down the top 500 and you start to find a few more: the Infocom and Level 9 adventures, *Lords of Midnight/Doomdark's Revenge, Quazatron* and *Tau Ceti.*

But how many of these "software greats" are well over a year old?

The question of originality does not wholly depend on the plot of the game. Another science fiction author, Robert Heinlein, once made a very good case for there being only three plots in the history of books, film, television et al.

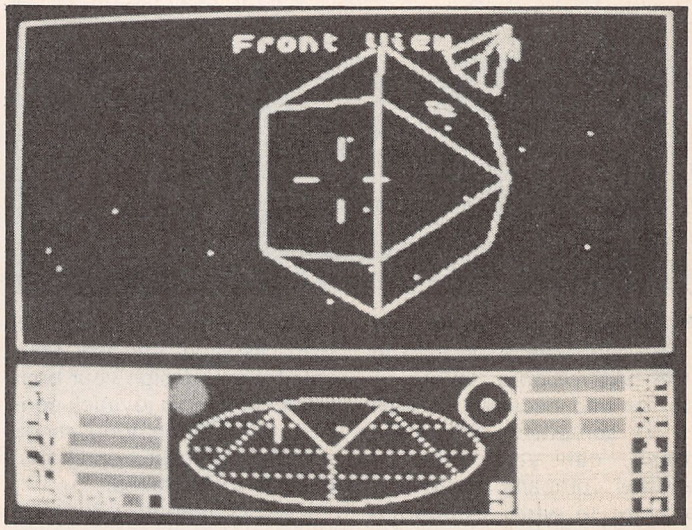
But those constraints haven't prevented a great many original stories being produced.

The problem with computer games is that, by and large, they have no plot at all, and no amount of waffle on the back of a cassette box is going to make up for that.

Nor do the majority of games have characters, and in the few games that do feature a recognisable character, they rarely develop in the

original computer game?

might have been expected? Peter Worlock outlines the history and philosophy of the games market – and comes up with some surprising conclusions



Right: Elite Below Lords of Midnight

course of the game.

The biggest offenders here are the coin-op arcade conversions, or those games that are either clones or merely variations on the theme.

Of course there will always be a demand for home computer versions of the arcade hits. What is so depressing is the number of companies churning them out.

Was there any need for all variations on *Green Beret/ Commando?* Is the British software industry so short of imagination that all it could come up with in 1986 were endless versions of *Uridium/ Exploding Fist* and re-releases of earlier hits?

Once you've got *Uridium,* why would you want another horizontally scrolling shoot 'em up?

And if the software companies must churn out these variations on a theme ad infinitum (and indeed, ad nauseam), can we at least have technical excellence – a department in which *Sanxion* and *Delta* from Thalamus score.

Which brings us, by a very circuitous route, back to the budget software publishers. According to Gallup, budget titles accounted for more than 160 of the top 500 best-selling games of 1986 – half of them coming from Mastertronic alone. And remember that Gallup itself admits that the chart is still biased against the budget software houses.

Not only are the budget titles cheap, but most are technically competent, adequate games. Many are of a standard which rivals the full-price software.

All of which suggests to me that there is not much future in what, without being disparaging, might be called average games software, at least for those companies currently pushing it out at around £10 a time.

> *"The question of originality does not wholly depend on the plot of the game. Another science fiction author, Robert Heinlen, once made a very good case for there being only three plots in all history."*

In terms of quality, perhaps the best hope for the development of the computer games industry is in the blending of arcade and adventure games, to which could be added strategy games as well.

Although the last year or so has heard a great deal of hype on this subject (most of it without foundation; how many times have you seen "the first true arcade-adventure" on a game) there are hopeful signs. Two obvious examples are *Elite* and *Mercenary.* In another direction I would add the likes of *Batman.*

One problem in the past has been the limitations of the hardware. The games mentioned are compromises: either sacrificing the mental challenge for graphics, or emphasising strategy at the expense of arcade-standard displays and gameplay.

What impressed me so much about Electronic Arts' *Starflight* (see my review last week) was how close the programmers had come to achieving the ideal: an enormous game universe, almost endless possibilities for interaction with other characters, scope for development of your own character/characters, and so on.

Another advantage *Starflight* has over adventure games in the traditional form is that it is not linear. Your characters do not have to perform a pre-determined sequence of actions to complete the game, mistakes can be made without being fatal, yet there are hallmarks of the adventure in the game: the need to acquire money and equipment, certain tasks that must be accomplished, information to be gathered by talking to other characters.

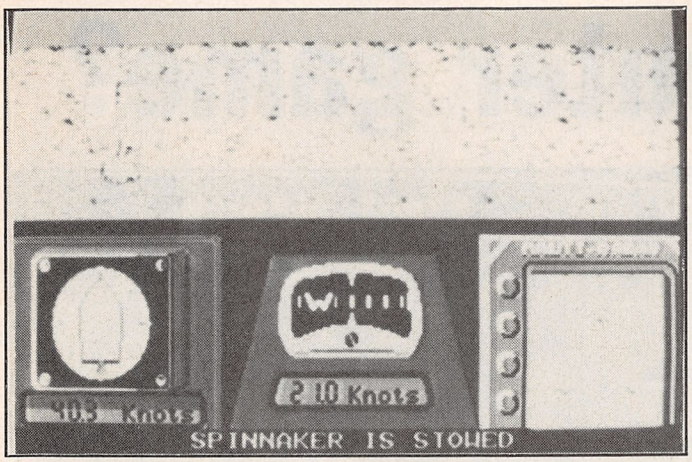
Where *Starflight* does fall down is in the display area, largely because of the limitations of the IBM PC hardware.

But generally, hardware problems are only a small part of the question. If it was possible to create *Elite* on a 32K BBC Micro, if it was possible to implement *Mercenary* on every computer currently available, then it is possible to produce comparable products now.

> *"Perhaps the best hope for the development of the computer games industry is in the blending of arcade and adventure games."*

The best software is so often the result of a personal effort, either taken to completion by an individual or by a team who share the same original, engrossing, sophisticated software.

Unless we get more of it, it seems to me that the future of computer games is not very bright.



I'd rather be sailing

There's one thing that can always be said in Activision's favour – on the odd occasion, it likes to try something different. I mean, can you think of another company that would attempt to write an International Yacht Racing simulation? Not only attempt – but succeed very well indeed.

It's America's Cup and all that, as you choose your country and design your boat (all under simple joystick control) to suit the long range weather forecast conditions, then off to the races.

You challenge countries above you in the competition 'ladder' to race around a triangular course of three buoys.

The upper part of the display shows the view from the prow of the boat, about as authentic as it could be without getting the monitor wet. At weaker moments (probably after two Big Macs), you will feel your tummy churn, it's that good.

The lower bit shows various instrumental bits and pieces, like wind direction, radar, etc, which will help you in your attempt to win races.

Gamesplay-wise, it's more entertaining than you expect. It does make a dramatic change from zapping the old aliens, but a surprising pleasant one.

It's certainly more a case of engage brain, rather than turn it off, but the competitive element and challenge of beating the very competent computer opponents is deceptively addictive.

Anyone shunning *Sailing* just because of the subject matter is going to be missing a rather neat game. Check it out.

Popular Appeal ♦♦♦♦

John Cook

Program *Sailing* **Micro** Commodore 64/Spectrum/Amstrad CPC **Price** £9.99 (tape) £14.99 (disc) **Supplier** Activision, Pond Street, London NW3.

Apocalypse now

Apocalypse has had a strange history. Originally starting out as a huge board game in the 1960's it was computerised by Red Shift in 1983, bought up by Games Workshop and finally licensed to Command Software for re-release this year.

For those not familiar with the game, it's all about conquest, destruction and complete annihilation. Oh, there's a modicum of diplomacy involved when three or four players are involved (no computer opponents note, due to the game's complexity), but that's just the icing on the cake.

The action then, is played out over a high resolution map; Europe and the Caribbean are available on all formats with a variety of other regions being represented on one computer or the other. The Spectrum graphics here are something of a let down expecially when compared to the excellent BBC maps.

Each player selects a number of cities to control at the start and then proceeds through nuke, revenue, movement and combat phases. The key to *Apocalypse* is the revenue value of each square of land, deserts being fairly worthless, cities and industrialised areas being very profitable. With the money bled from occupied territory you can build, armies, fleets and nukes. The way to gross the most from an area is to leave one army unit behind in each square whilst the main force progresses on.

Because of all the armies swarming around the countryside the best way to destroy them and everything else in the surrounding eight squares is to launch a nuke. The revenue value of the land affected by the blast usually becomes nil, or at best very little, thanks to the damage and radiation. It's always good fun to ruin the heart of an opponent's industrial power.

The unfortunate thing is that once built you can't fire it until the next turn. This leads to frantic assaults by the opposition in a bid to capture said device. Even more insidious is the detonating of a nuke near to someone elses, as the explosion also detonates theirs!

Apocalypse is a wonderful game for would be insane world leaders, so if you've got an afternoon (or a day sometimes) spare then grin manically and prepare to destroy.

Popular Appeal
♦♦♦ (Spectrum)
♦♦♦♦ (BBC B)

Duncan Evans

Program *Apocalypse* **Micro** Spectrum/BBC B **Price** £9.95 (tape) £14.95 (disc) **Supplier** Command Software, Mitre House, Abbey Road, Enfield, Middlesex EN1 2RQ.

A matter of taste

Don't be fooled by the blurb into believing that *Rasterscan* is an "animated adventure without text". In fact it's a straightforward Ultimate-type game, but with unusual and brain-boggling graphics.

Set aboard a crippled spaceliner, the game involves activating damaged systems, learning to steer the ship, and using the scanner to determine how close you are to falling into a sun.

Your tool is a service droid, MSB, which appears as a spinning globe moving over the bizarre backgrounds. MSB can teleport items from one place to another, and can negotiate locked doors if you can decode the locking sequence. This is done by solving a colour-code puzzle which had me alternately sniffing with contempt and tearing my hair with frustration. Very odd.

The backgrounds of moiré patterns, giant hands, spanners (?) and endless tubes hide the artifacts which you need to repair the ship and avoid destruction.

There's a map, an inventory display, and indicators for power, fuel and danger, the last of which should be heeded if you want to avoid blowing up the ship.

Novel and imaginative; 'though whether it will hold your interest long enough to solve the problem is a matter of individual taste.

Popular Appeal ♦♦♦

Chris Jenkins

Program *Rasterscan* **Micro** Amstrad CPC **Price** £1.99 **Supplier** Mastertronic, 8–10 Paul Street, London EC2A 4HJ.

Pure gold!

Bad news – the Earth is dying . . . well, that's what it says here anyway. Just think, if we'd only listened to that nice Anneka Rice and bought unleaded petrol.

Still, luckily in this far future scenario, new worlds have been found. The only thing stopping us are the Ringworlds of Triton.

The Ringworlds must be passed through to get to the new worlds, only the inhabitants are massively hostile and have a range of awesome weapons. Send in the one man fighters, I say – send in the Goldrunners!

It's vertical scrolling time again – this time on the ST. But, by golly, is it fast and isn't it well done?

You control a large yellow spaceship that can move around all of the screen.

Zapping ground installations is the order of the day, as this drains the 'ring' of energy and lets you leave the level via a portal, on to a bonus screen and the next level. But it's not easy.

There are plenty of aliens that sweep around and about in droves – but it's not these that do you any harm, it's the disruptor bombs that they release.

These are homing missiles that need all the skill at your disposal to avoid. It'll take about seven hits to kill you off, but before that, you'll loose your wing lasers (giving you extra firepower) and booster engines (a turbo charger that can move you out of danger).

And to add to the excitement, there are ground emplacements that, if collided with, kill you instantly – like *Uridium*. This requires a keen memory as you progress around the ring if you are to avoid being creamed up against the nearest wall.

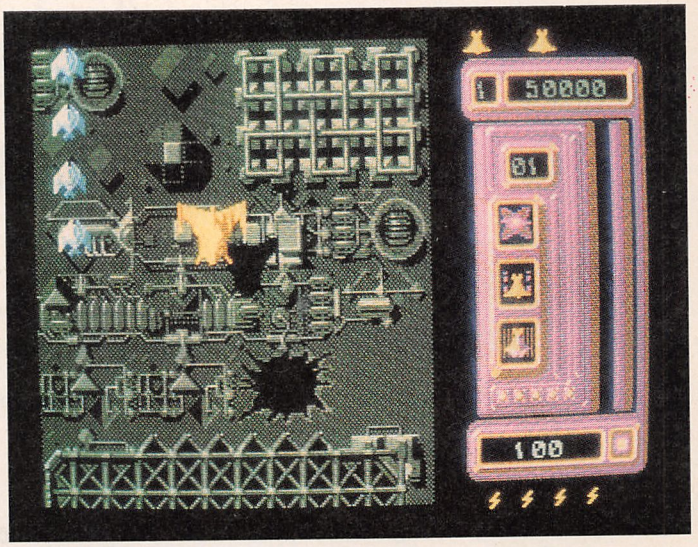
The actual implementation on the ST is almost flawless. The scrolling of the highly detailed backgrounds is mind-bogglingly fast, the animation of the Goldrunner craft is of the highest quality – the aliens are colourful too.

Add the decent soundtrack, sampled commentary and decent effect – all add up to the best single player shooter for the ST so far.

Popular Appeal ♦♦♦♦

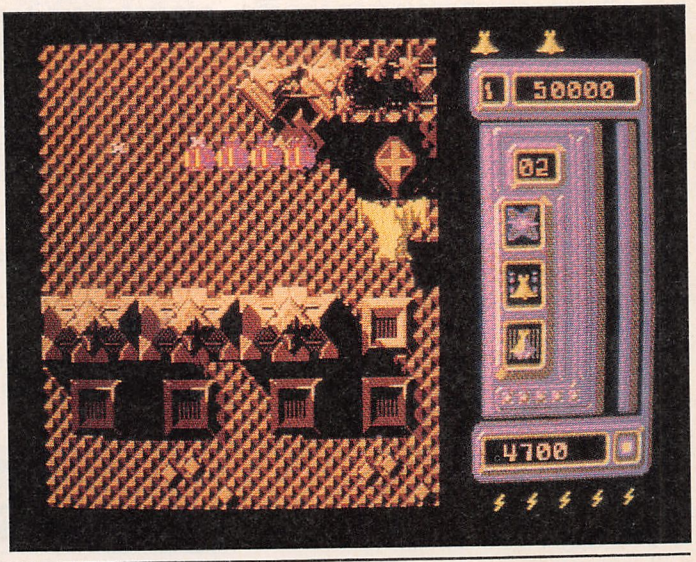
John Cook

Program *Goldrunner* **Micro** Atari ST **Price** £24.95 **Supplier** Microdeal, Box 68, St Austell, Cornwall PL25 4YB.



Goldrunner – **beautifully detailed backgrounds**

The yellow is in peril – zap those aliens



We can rebuild it...

We can rebuild him . . . or maybe in this case, reprogram him. *Cyborg* was announced at the PCW show, and after all this time, at least you'd have thought the result would be a polished, professional piece of work. But no, *Cyborg* is scrappy.

On the odd occasion, you find you can move your man behind what is supposed to be background. Moving through open doors it can sometimes be a struggle to get the movement just right. We managed to corrupt a portion of the lower part of the screen, when a window asked for a prompt. Nothing fatal – but if you're paying full price for a piece of software, you don't expect this kind of amateurism.

Thus, the game itself cannot be described as anything more than mediocre.

The screen display draws much from predecessors such as *Nexus,* as you plod around (in Cyborg form . . . looking more like a hunchback) in your attempt to rescue seven astronauts who have disappeared on a mission to investigate a mystery asteroid 70 days from taking out Earth itself.

The majority of the action takes place in an underground complex, inhabited by hostile aliens.

The Cyborg is moved via joystick, with other activities being governed by the menu in the lower right of the screen– activated by F1.

Rooms must be entered, terminals logged on to – which in turn give codes to lower levels of the complex.

There's probably more to the game – I felt I was near to the end of the first mission, and another would have loaded afterwards, I suspect – but I didn't feel tempted to continue, and I suspect you wouldn't either.

Popular Appeal ♦♦

John Cook

Program *Cyborg* **Micro** Commodore 64 **Price** £8.95 **Supplier** CRL Group, 9 King's Yard, Carpenters Road, London E15.

You say you want a Revolution . . .

Tony Kendle beetles back with more tips for your favourite games

I have a plea here from John Bishop who wants help to track down Andrew Davies. Andrew, who used to live in Crynant in Neath, has been a regular contributor to the column and was responsible for designing a spare room in the Spectrum version of *Jet Set Willy*. (Anyone with long memories will recall that once we discovered that there was actually enough spare memory, and a reasonably easy method, for adding a new room to the game we ran a small competition, Andrew won this with his entry called 'Dedicated to PCW'.)

John Bishop writes, "Andrew used to be a programmer for us, helping with games that we sold to mags and to other people. But last year I lost contact with him and cannot find him again." I have also tried to get in touch with Andrew on a couple of occasions with no joy, so if anyone reading knows him, or is him, please get in touch.

John continues, "Would anyone else like to help with our programs? If so, send me an example of your work (adventures, arcade, utilities) for the Spectrum at this address: John Bishop, 1 Sunny Bank, Milford Avenue, Wick, Bristol BS7 55PL.

"I will return your tapes and let you know if you can help."

Now back to the tips.

Nexor

Don't touch any moving aliens or walk into bombs. Use chair and blocks to make staircases over dangerous objects. Bubbles can be used for transport. Moving blocks can be used to carry you round alien rooms.

Revolution

Judge the bounce of your ball, so that it at least matches the height of the objects you are attempting to get on to or touch. White double bounce squares are usually there for a purpose.

Less pseudonymously, but apparently without fixed abode, Ben Wood writes with two tips for Commodore 64 games. We have already published a routine for *Space Harrier,* so here are Ben's pokes for *Trailblazer.*

Load the game and then reset it. When the *Ready* message appears type

```
POKE 29738,234
POKE 29739,234
```

for unlimited time and

```
POKE 30889,234
POKE 30890,234
POKE 30891,234
```

for unlimited jumps,

Now for another mystery. This letter has arrived in my mailbag without any accompanying name and address. If anyone recognises it as all their own work – thanks, and write again soon whoever you are. (Can I remind people that letters and the accompanying envelopes often get separated in *Popular's* vast maze of corridors – so please make sure that the letter itself contains all of the necessary information).

We are therefore indebted to Anon for the following games tips.

Uridium

Learn the space carrier layout carefully. Do 90 degree spins when flying through narrow spaces. Avoid areas on the carrier with long shadows as this denotes a higher surface level which you could crash into.

Glider Rider

Map the island carefully. Watch the energy level frequently – it can drop very quickly. Examine all objects – they are usually there for a purpose.

Stainless Steel Cheat modes

By holding down the keys S, T, A, I, N, L, Z, X, before losing any lives you will be given infinite lives.

Also you could try Q, A, J, K, L, I, O, P and *Enter* at once which gives you extra lives, then press the shield key to get lots more.

Then type

SYS 25729 to start.

Charts

Top Twenty

1	(1)	Feud	**Bulldog**
2	(13)	Nemesis	**Konami**
3	(2)	BMX Simulator	**Code Masters**
4	(3)	Gauntlet	**US Gold**
5	(4)	Konami's Coin-op Hits	**Imagine**
6	(14)	Ninja	**Mastertronic**
7	(11)	Curse of Sherwood	**Mastertronic**
8	(8)	Ollie and Lisa	**Firebird**
9	(9)	Paperboy	**Elite**
10	(6)	180	**Mastertronic**
11	(7)	Leaderboard	**Access/US Gold**
12	(12)	Bomb Jack 2	**Elite**
13	(13)	Footballer of the Year	**Gremlin Graphics**
14	(19)	Escape from Singe's Castle	**Software Projects**
15	(–)	Computer Hits 10 Vol 3	**Beau Jolly**
16	(15)	Arkanoid	**Imagine**
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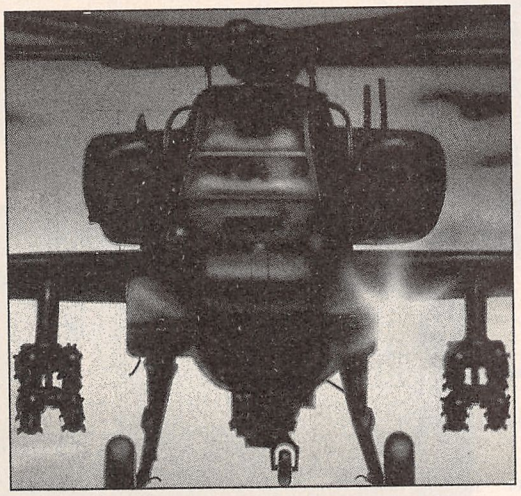

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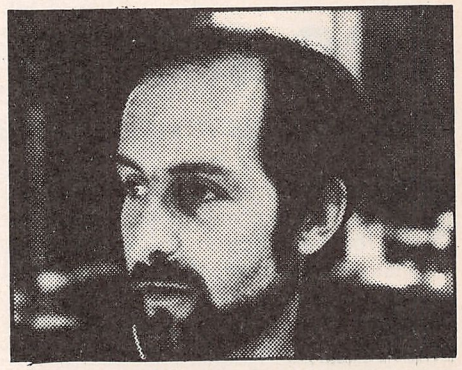
The goose that laid the golden eggcup



Tony Bridge reviews new and wacky adventures from Clwyd Software and Network Adventures

I recently received the latest opus from Clwyd Software, *Landfall on Rollu* – reading through the voluminous and very atmospheric and well-written documentation, I could hardly wait to load up the adventure itself. What a disappointment!

I'm sorry to say this, because Clwyd's author obviously has a great imagination and a very good way with words. This is fine in the background story and, as I've said, really whets the appetite for the adventure but the program itself transports the player back to the dark days of the early *Quill*, with line after line of *You can't do that/I don't understand that.*

The location descriptions, as you'd imagine from what I've just said of the documentation, are atmospheric, but even so, they suffer from the same problems as the rest of the adventure, that is, an untidiness and sloppiness – displaying in fact a bit of a throwaway attitude.

This is a great shame; I'm afraid that we're entering an era when it just won't do to sling out a *Quill'd* mish-mash with a bit of fantasy background and expect it to be lapped up. It may well be that the later puzzles are as good as the atmosphere that is created in the storyline, but I just couldn't be bothered, I'm ashamed to admit it, to persevere and see for myself.

The price of £3.99 is 50p or so on the high side as it stands, but with a good deal of polishing up here is the opening (one necessity being the inclusion of Ram save and load, which are glaring omissions in the present version – and although I'm not an advocate of unnecessary pictures, nevertheless, I think we are entitled nowadays to a bit of attractive presentation in the form of a loading screen to set the mood), the basic scenario would stand up to the most rigorous test and be up there with some of the more professional efforts.

Clwyd should do well as fantasy writers – as adventure writers, I'm afraid that unless they can show me good reason to expect more from later parts of their game, they just don't have that certain something. . . .

This brings me to *The Quest for the Golden Eggcup* from Network Adventures: this starts with a very neat and tidy loading screen, which reminds me of the layouts that Campbell's *Masterfile* and very upmarket programs on IBM compatibles manage – this gives the program an immediate impression of professionalism, unlike many attempts at art that I get to see.

It comes with a little help from Paul Cook and Jon O'Brien (it says here) and the *Quill.*

To the story . . . after being run down by a CS on the MS, you wake up to find yourself in a golden temple, beside a huge Golden Eggcup – here you meet God (not content with second best, these guys from Bracknell), who wants you to recover his personal Eggcup, which has been stolen. If you fail, then *you* may become God's next breakfast. The dedications are good reading – I'm glad to see that they mention good old Mum and Dad as well as Delta 4, Design Design and their pets – but also, shock horror, Madonna! And just when I was beginning to think that here was an outfit with a bit of taste . . .

If, like me, you dread those adventures with weird, wacky titles, and are tempted to pass on this one, don't ! It's one of the best I've seen lately, particularly at this price.

There are an awful lot of locations to be explored, and a lot of objects to be picked up, some of whose uses are pretty obscure. I'm glad to see that you can examine just about everything and everyone in the adventure, and usually glean some important information from this examination (although a lot of clues are heavily disguised as signs which point the player in the right direction with a big hint).

One of my favourite devices, unfortunately not often seen in adventures, is the ''innocent detour'' which the player can take into a set of locations which have no direct bearing on the adventure at hand, but nevertheless provide a welcome diversion. In this case, it is the White Tower of Network Adventure, and here you'll meet some of the characters from that organisation. Although I said that this is an innocent diversion, there are plenty of objects in the tower (including a picture of the ''treeless forest''!), so maybe some of them will be useful in other parts of the adventure – in fact, that would be a delicious twist.

The Quest owes a lot to Network's hero, Fergus McNeil (even the title and the 'diversion' are reminiscent of Delta 4's *Holy Joystick* caper), but is original enough for all that. The program uses all the regular features of *The Quill,* including Ram Save/load, though no graphics. And the price of £1.99 is just right. Harvey, the author, also tells me that he is willing and able to help readers in a variety of adventures, including *The Hobbit, The Hulk, Subsunk* and about 30 others.

Clwyd Software, 14 Snowdon Avenue, Bryn-y-Baal, Nr Mold, Clwyd CH7 6SZ.
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Spellbound on Amstrad. Having got the wand and elf-horn, I cannot get any help and keep dying of exhaustion. L J Beth, 66 Whitelow Road, Chorlton-cum-Hardy, Manchester 21.

Dracula on ZX128+2. I keep dying of cold in the second coach on the way to Dracula's castle, Tape 1, Part 2. A J Boxall, 33 Sunray Avenue, Herne Hill, London SE24 9PX.

The world of musical micros

Mark Jenkins reviews Cheetah's newest interface for your Spectrum

Cheetah has just about cornered the market in cheap musical add-ons for the Spectrum, having clocked up massive sales of its Spectrum and sound sampler and having latterly the MK5 Midi keyboard. Now it has gone the whole hog with a Midi interface and accompanying software which will take your micro into the world of professional music composition – and all for just £49.95.

Those not familiar with Midi (Musical Instrument Digital Interface) need only know that it's a universal digital communication language for processor-based musical instruments. Midi allows you to control one, two, 16 or even more musical instruments from your micro, and is now standard on effects units, sequencers, drum machines, and even guitars and wind instruments as well as keyboards, pianos and synthesisers.

Setting up a Midi system needn't be too expensive – the cheapest Midi drum machine, the excellent Roland TR505, is around £250, and the Casio CZ-101 mini synth is available second-hand for as little as £190 (Yamaha's keyboardless FS-01 is also a powerful Midi synth although you'll need a keyboard such as Cheetah's MK5 to programme for it).

So, once you've chosen your Midi instruments, you're ready to connect them up to the in, out and through sockets of the Cheetah interface. This slots into the rear of the Spectrum (48K, 128K and Plus 2 models). Ordinary Hi-Fi Din leads will do the job, although in fact you're supposed to use special shielded Midi cables, and the software which comes with the interface is designed to offer you an eight-track sequencer – a system which can record individually, and play back simultaneously, up to eight different musical parts.

Each part can be polyphonic (can contain up to 16 notes simultaneously) and you can synchronise a drum machine with the automatic Midi clock signal, so as you can imagine, some very complex pieces of music can be composed.

There are two ways of entering notes – in 'real time', performed live on the synth keyboard and played back note-for-note by the computer, or in 'step time', where notes are entered from the synth but played back all with equal timing. Step time entry is better for fast, repeated sequences, real time better for expressive melody parts, and it's good to see both offered on such an inexpensive package.

Sequences can be played forwards or backwards, the velocity with which you strike the keys is recorded as is pitch bend and other performance data, a delay up to seven seconds long in 0.1s steps can be set to create echo effects, and you can transpose tracks to different keys and "quantise" your performances (correct each note to the nearest beat).

"The displays used are very comprehensible and move quite quickly"

Cheetah: cornering the market

Each of the eight tracks stored can have 16 verses, each verse being from one to 64 bars in length. Each track can be assigned to transmit on any one of the 16 Midi "channels" so it can address different synthesisers quite independently from all the others.

You can transfer the program to microdrive and it opens with a menu offering some 19 options selected with the up and down arrow keys. The first, 'record a verse', brings up a visual metronome, a value in beats per minute and a quantisation value from $\frac{1}{2}$ notes to $\frac{1}{32}$ triplets, or "Off". This should be made larger if you want your performance to be corrected into a very regular style and made smaller if you want to retain the maximum amount of free expression. Tempo is variable during recording from 40 to 244 BPM and there's a count-in before you start playing.

You can then 'restart' to layer a new performance, 'merge' to add your performance to a piece already in memory, 'append' to the end of an existing piece, or 'transpose' up or down to a new key.

'Track and verse to record' defines which section of memory you work on next, and 'adjust verse length' allows you to set the length of the verse in bars. 'Link 2 or copy 1 verse' allows you to create repeated passages very easily, while 'delete a verse' will come in handy when you're running short of memory.

The most interesting section is probably 'define sequence tracks', which lets you program any verse as a backing, looping if required, so a number of sequences up to 64 bars long can be available at any time for a live performance. Verses are lettered A-P and 'track enable' will allow you to turn off any track if you don't want it to play while you're composing.

'Steptime editing' uses a bizarre display approximating a punched pianola roll. A keyboard logo at the bottom shows which of the eleven available octaves you're working in while the up and down arrows select the exact note, the *F* and *B* buttons select the bar, and the *Z* and *X* buttons move a cursor to the exact point in time at which you want the note to occur. Alternatively you can select the 'N(ote)' option to play the note in from the synth keyboard.

Time signature can be set anywhere between 4/4 and 9/8 and you can select some quite sophisticated Midi options – deleting patch change, pitch bend or pressure information to save memory, going into 'omni' (all channel) mode and so on. You can also choose not to send program changes and so on, but you can't send Midi song pointers which are handy when working with some equipment.

Entering a song involves simply typing in a list of letters corresponding to the verses and sections of verses you want to hear. This isn't a very sophisticated method and involves a lot of memory work on your part. However, it should be possible to get used to it (particularly if you write down which verse is intended for which part of your song) so it's quite acceptable.

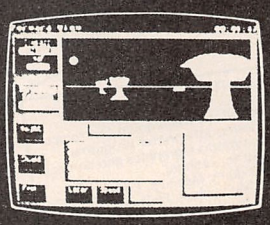
One brilliant move has been in the choice of synchronisation options. While Midi clocks are easily dealt with, the spare two pins of the Midi through socket are used to accept 24, 48 or 96 pulses per quarter note plus a Start/Stop signal used by older non-Midi drum machines such as the classic Roland TR808.

Overall, the Cheetah Midi interface and software seem excellent value for money. The displays used are boring and far from the professional standards of the Hybrid Arts or Steinberg programs for the Atari micros, but they're very comprehensible and move from one to the next quite quickly.

Cheetah deserves every success with this. It's doing so well at the moment that it is moving to new premises after April; the old office (1 Willowbrook Science Park, Crickhowell Road, St Mellons, Cardiff, 0222 777377) will remain in use until April 30, while the new office comes on line on April 21.

Product *Cheetah Midi interface* **Micro** Spectrum 48/128/Plus 2 **Price** £49.95 **Supplier** Cheetah Marketing, Norbury House, Norbury Road, Fairwater, Cardiff CF5 3AS, 0222 555525.

ACADEMY



By PETE COOKE, author of TAU CETI

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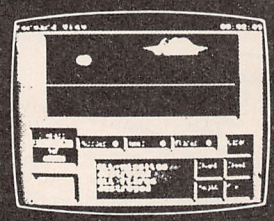

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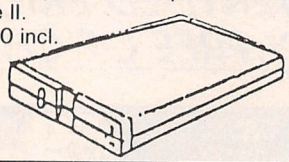

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TYPESETTING on your ST

The manual says that "... *Typesetter Elite* is a program that will allow you to compose pages on your ST and then print them out on your printer . . .". This may seem a fairly modest claim at first reading, but it understates what is a pretty powerful piece of software.

The program conforms, most of the time, to the Gem Wimp environment provided by the ST. There are, however, one or two items that can only be accessed through the keyboard. Also the authors warn of not trying to use a drop down menu whilst the program is busy, which is not exactly how Digital Research set Gem up to be used. Having said that the program behaves itself well.

There are many ways that the program can be used, either separately or, more effectively, in combination. There are three separate systems of text entry as well as three separate graphics systems.

The entire character set can be used, or you can provide your own if you possess a font editor such as supplied with *Degas* or XLent's own *Megafont* program. The three systems of text entry consist of system fonts, graphics fonts and NLQ fonts. The system fonts are the ones provided by the ST itself. These can be varied in size from 01 (small) to 23 (large). Also these characters can be toggled for italics, thickness, underline, outline and intensity.

The graphics fonts are formed on a 16 x 8 grid, the same as those as used by *Degas*. These can be of any style that you care to dream up and consequently load into the computer. These graphics fonts can also be separately adjusted for width and height each with ten settings. This gives a range of a hundred different sizes. However, some of these are of such peculiar proportions as to be very rarely useable.

In the third group, the near letter quality mode, the characters are formed on a 10 x 12 grid and give a very clean, well proportioned font. There are, unfortunately no alterations you can make to the characters and only two fonts are supplied on the disc. There is no information as to how the fonts are stored and no 10 x 12 font editor either.

It is this mode that the program will use when loading a page of text that has been generated by the text editor supplied with the program. This text editor will create documents ready for typesetter or transfer *1st Word* documents into the appropriate file format.

The three graphics systems are direct loading of picture files, loading small sections of the screen called icons and direct generation of images on the screen, with a collection of drawing/painting tools similar to *Degas*.

> *"All graphics and all text may be placed on the screen in either overlay or replacement modes. In addition, more fanciful effects may be achieved by exclusive Or'ing (Xor) images on top of each other"*

The creation of pages takes place upon a full screen which actually only represents about 40% of the finished page. You can view a whole page but you can't carry out any work in this mode. To compensate there is a pretty comprehensive set of screen shifting commands which allow movement in all directions by column or row. In addition to the cursor's normal character movement the cursor can be adjusted pixel by pixel.

All graphics and all text may be placed on the screen in either overlay or replacement modes. In addition, more fanciful effects may be achieved by exclusive Or'ing (*Xor*) images one on top of the other.

User defined sections of the screen may be picked up and moved, or copied, to other parts of the screen may be picked up and moved, or copied, to other parts of the screen at will. There is, however, a limit to the size of the section to be moved. The actual move can be quite slow by ST standards.

I come now to what I believe to be the major problem of *Typesetter Elite*. The manual claims it to be a Wysiwyg display. On first viewing this seems to be true. Unfortunately, after your first print-out you can clearly see this is not the case.

To put it simply, the screen is wider than it is high, whilst the printed page is higher than it is wide. This leads to a vertical elongation, of about 33% on a print out compared to the screens display.

On purely text material, a stretching of 33% is hardly noticeable. Unfortunately, a picture can look badly distorted on being printed. To be fair to the manual it does point this out, but to overcome this problem it suggests using a 33% vertical compression routine on any picture file you are going to use.

The real problem comes when you realise the compression routine isn't provided. It can only be found in another piece of XLEnt software called *Rubberstamp!*

The final print-out is chosen from a comprehensive list of options, including a full page, a single screen dump, index cards or even a freeform in which you set the four corners.

Three sorts of printer are supported and the Epson mode can be additionally set for high density printing. The other two types are Prowriter/NEC 1023 or Gemini 10x. There doesn't appear to be any way of creating custom printer drivers if you don't happen to own one of these types.

Although you couldn't really describe this package as desk top publishing, I thought I would have a stab at something simple just to gauge the results. The results were quite respectable and I learned a lot about the do's and don'ts of the program. The digitised photographs suffered a lot in the compression routine but on the whole I was pleased with the result.

The real strength of the program lies in its ability to create forms or posters, etc, with comparative ease. I think *Typesetter Elite* should be considered more as a sophisticated, free form, version of the 8-bit *Printshop* program or ST *Printmaster*.

One final point worth mentioning is that the manual is very straightforward and easy to understand but that some mention of file formats would have been appreciated.

In conclusion, I would have to say that it is an impressive piece of software and must be considered very good value for money at £35, despite my reservations about the aspect ratio problem.

Mark Annetts

Program *Typesetter Elite* **Micro** Atari ST **Price** £34.95 **Supplier** XLent Software, 514–516 Alum Rock Road, Alum Rock, Birmingham B8 3HX. 021-328 3585.

Programming: Spectrum

Graphic Finder

David McCandless

Graphic Finder allows the user to search through code for graphics. Once found, the graphic's height and width can be altered, it can be inverted, its address in memory and the amount of bytes it takes noted.

It has a use to the games programmer for cataloguing graphics to use in tables and can also be used to extract them from your favourite game, to produce displays.

The search controls are as follows:

W – increases pointer by one graphic
S – decreases by one graphic
E – increases pointer by one row
D – decreases by one row
F – increases pointer by one byte
R – decreases by one byte
T – increases pointer by eight rows
G – decreases by eight rows

Manipulation controls are as follows:

Q – decreases height
A – increases height
O – decreases width
P – increases width
1 – inverts graphic
2 – saves graphic

```
  10  PAPER 0: INK 7: BORDER 0: CLS : LE
T t=0
  20  FOR i=23296 TO 23354: READ a: LET
t=t+a: POKE i,a: NEXT i
  25  IF t<>5251 THEN  PRINT "ERROR IN D
ATA": STOP
  30  DATA 17,0,0,33,0,0,34,249,175,6,16
,197,237,75,249,175,120,60,50,250,175,61
,205,177,34,0,6,2,26,0,119,19,35,16,249,
0,193,16,228,201
  35  DATA 42,1,91,1,0,0,126,47,119,35,1
1,120,177,32,247,205,0,91,201
  40  LET w=2: LET h=50
  50  INPUT "Start Address ";x
  60  POKE 23306,h: POKE 23323,w
  65  LET c=w*h
  70  POKE 23297,x-256*INT (x/256): POKE
 23298,INT (x/256)
  80  PRINT AT 15,0;"WIDTH   :";w;"   ";
AT 16,0;"HEIGHT  :";h;"    ";AT 17,0;"AD
DRESS :";x;"  ";AT 18,0;"TOTAL   :";c;"
  "
 100  RANDOMIZE USR 23296
 110  LET a$=INKEY$
 120  IF a$="q" THEN  GO TO 300
 130  IF a$="a" THEN  LET h=h+1: GO TO 5
40
 140  IF a$="o" THEN  GO TO 400
 150  IF a$="p" THEN  LET w=w+1: GO TO 5
50
 160  IF a$="w" THEN  LET x=x+c: GO TO 6
0
 170  IF a$="s" THEN  LET x=x-c: GO TO 6
0
 180  IF a$="e" THEN  LET x=x+w: GO TO 6
0
 190  IF a$="d" THEN  LET x=x-w: GO TO 6
0
 200  IF a$="r" THEN  LET x=x-1: GO TO 6
0
 210  IF a$="f" THEN  LET x=x+1: GO TO 6
0
 220  IF a$="t" THEN  LET x=x+w*8: GO TO
 60
 230  IF a$="g" THEN  LET x=x-w*8: GO TO
 60
 240  IF a$="1" THEN  GO TO 500
 250  IF a$="2" THEN  GO TO 490
 260  GO TO 110
 300  LET a=w: LET b=1
 310  POKE 23325,175
 320  LET h=h-1
 330  IF h=0 THEN  LET h=1: GO TO 365
 340  POKE 23300,0: POKE 23301,h
 350  POKE 23306,b: POKE 23323,a
 360  RANDOMIZE USR 23296
 365  POKE 23325,0
 370  POKE 23301,0
 390  GO TO 60
 400  LET a=1: LET b=h
 410  POKE 23325,175
 420  LET w=w-1
 430  IF w=0 THEN  LET w=1: GO TO 470
 440  POKE 23300,w*8: POKE 23301,0
 450  POKE 23306,b: POKE 23323,a
 460  RANDOMIZE USR 23296
 470  POKE 23325,0: POKE 23300,0
 480  GO TO 60
 490  POKE 23340,c-256*INT (c/256): POKE
23341,INT (c/256): RANDOMIZE USR 23336:
GO TO 110
 500  INPUT "NAME ";n$
 510  SAVE n$CODE x,c
 530  GO TO 60
 540  IF h>121 THEN  LET h=h-1: GO TO 60
 545  GO TO 60
 550  IF w>32 THEN  LET w=w-1: GO TO 60
 560  GO TO 60
```

Programming: Einstein

Wire Frames

Graham Bettany

This Einstein program creates wire drawings by the use of two cursors, with the option of fast or slow movement. Once positioned a line may be drawn between them.

The program is self explanatory when run, the top two lines being used as a prompt for which cursor to move, or select the current operation. Pressing the *Enter* key cycles through the options. The controls are as follows.

A – left
: – up
* – restart
$ – save drawing
O – slow draw
/ – down
O – cursors off
J – overlay cursors
S – right
D – draw
U – undraw
! – load drawing
1 – fast draw

Anyone interested in the Einstein can contact the user group I run, at 80 Dales Road, Ipswich, Suffolk IP1 4JR.

```
  5 REM *** DRAW ***
 10 RST:PRINTCHR$(20):IOM5,0
 20 GOSUB9000:GOSUB10000
 30 TCOL1,15:PRINT@0,0;"MOVE X       ":PRINT@0,1;"           ":TCOL15,1
 40 SPRITE0,X-4,Y+4,15,130
```

```
    50 PRINT@0,2:A=INCH:REM FROM
    60 IF A=65 THEN X=X-SP
    70 IF A=83 THEN X=X+SP
    80 IF A=47 THEN Y=Y-SP
    90 IF A=58 THEN Y=Y+SP
   100 TCOL1,15:PRINT@15,0;"SX=";X;@22,0;"SY=";Y:TCOL15,1
   110 IF A<>13 THEN 40
   120 TCOL1,15:PRINT@0,0;"MOVE +       ":TCOL15,1
   130 SPRITE 1,XX-4,YY+4,15,131
   140 PRINT@0,2:A=INCH:REM TO
   150 IF A=65 THEN XX=XX-SP
   160 IF A=83 THEN XX=XX+SP
   170 IF A=47 THEN YY=YY-SP
   180 IF A=58 THEN YY=YY+SP
   190 TCOL1,15:PRINT@15,1;"FX=";XX;@22,1;"FY=";YY:TCOL15,1
   200 IF A<>13 THEN 120
   210 TCOL1,15:PRINT@0,0;"OPERATION":TCOL15,1:PRINT@0,2;: A=INCH
   220 IF A=68 THEN DRAWX,YTOXX,YY:PX(C)=X:PX(C+1)=Y:PX(C+2)=XX:PX(C+3)=YY:C=C+4
   230 IF A=85 THEN:DRAWX,Y TO XX,YY,1:LETC=C-4
   240 IF A=42 THEN RUN
   250 IF A=36 THEN B=0:DOKE&8000,C:FOR F=&8002 TO &8002+C-1:POKE F,PX(B):B=B+1:
NEXT
   260 IF A=36 THENTCOL1,15:PRINT@0,0;:PRINT@0,0;"NAME?     ":PRINT@0,1;:INPUT"";
F$:TCOL15,1:SAVE F$+".OBJ",&8000,&8000+C+2:RUN
   270 IF A=79 THEN SPRITEOFF:A=INCH
   280 IF A=49THEN SP=8
   290 IF A=48THEN SP=1
   300 IF A=74THEN X=XX:Y=YY
   310 IF A=33 THEN RUN 12000
   320 GOTO 30
  9000 X=100:Y=100:XX=X:YY=Y:SP=1
  9020 SHAPE 130,"8142241818244281"
  9030 SHAPE 131,"0808087F08080800"
  9100 RETURN
 10000 DIMPX(1000):C=0:TCOL15,1:BCOL1:CLS32:TCOL1,15:PRINTSPC(64):TCOL15,1:RETUR
N
 12000 RST:CLEAR&8000:PRINTCHR$(20):DIMPX(1000):GOSUB9000:CLS32:TCOL1,15:PRINT S
PC(64)
 12010 PRINT@0,0;"NAME?    ":PRINT@0,1;:INPUT"";F$:TCOL15,1
 12050 LOAD F$+".OBJ":N=DEEK(&8000):FOR A=&8002TO&8002+N-1:PX(C)=PEEK(A):C=C+1:N
EXT
 12100 FOR A=0TO C-1STEP4:DRAW PX(A),PX(A+1)TOPX(A+2),PX(A+3):NEXT
 12150 GOTO30
```


Raster Scroller

Neil Raine

This routine will scroll up to 18 lines of the screen, smoothly up to 400 pixels a second under raster interrupt. All Basic programs will continue normally even when the scrolling is on.

The routine can be easily incorporated with Basic or machine code programs as long as the interrupts are not affected and *$C000–$CF000* is not used. The scrolling screen memory is moved to 15360–16359 and so any text printed from Basic or machine code will not affect the scrolling area. The scrolling screen must be 255 characters long but can be 1–18 in height.

To start the routine use *Sys 49152*. The interrupt should now be running and the border should be two different colours.

The second part of the listing and instructions appears next week. For a version of this program on disc or fast load cassette, and also advice on using this program, send £3.00 to 24 Storey Square, Barrow-in-Furness, Cumbria LA14 2DL.

continued on page 24 ▶

Programming: Commodore 64

```
5 X=0
10 I=49152
20 READA:IFA=256 AND X=125370 THEN PRINT"ALL DONE":END
30 POKE53280,A:IF A=256 THENPRINT"INCORRECT DATA"
35 X=X+A
40 POKEI,A:I=I+1:GOTO20
50 DATA 173,22,208,41,248,41,247,9
60 DATA 16,141,118,195,32,199,192,96
70 DATA 173,25,208,24,106,144,86,169
80 DATA 255,141,25,208,173,116,195,141
90 DATA 18,208,173,130,195,141,32,208
100 DATA 173,24,208,41,15,9,16,141
110 DATA 24,208,173,24,208,41,240,24
120 DATA 109,129,195,141,24,208,169,200
130 DATA 141,22,208,32,230,192,238,136
140 DATA 195,173,136,195,205,120,195,208
150 DATA 242,169,0,141,136,195,141,31
160 DATA 208,169,127,45,17,208,141,17
170 DATA 208,120,169,112,141,20,3,169
180 DATA 192,141,21,3,88,76,49,234
190 DATA 173,25,208,24,106,144,246,169
200 DATA 255,141,25,208,173,117,195,141
210 DATA 18,208,173,132,195,141,34,208
220 DATA 173,133,195,141,35,208,173,131
230 DATA 195,141,32,208,173,24,208,41
240 DATA 15,9,240,141,24,208,173,118
250 DATA 195,141,22,208,173,24,208,41
260 DATA 240,24,109,128,195,141,24,208
270 DATA 169,127,45,17,208,141,17,208
280 DATA 120,169,16,141,20,3,169,192
290 DATA 141,21,3,88,76,49,234,173
300 DATA 14,220,41,254,141,14,220,120
310 DATA 169,16,141,20,3,169,192,141
320 DATA 21,3,88,169,255,141,25,208
330 DATA 169,1,141,26,208,96,140,135
340 DATA 195,173,134,195,201,1,240,11
350 DATA 173,134,195,201,2,240,8,172
360 DATA 135,195,96,32,29,194,96,32
370 DATA 24,193,96,173,17,208,41,239
380 DATA 141,17,208,169,0,173,21,208
390 DATA 141,127,195,169,0,141,21,208
400 DATA 173,21,208,141,124,195,173,118
410 DATA 195,201,208,240,67,173,118,195
420 DATA 201,215,240,76,173,118,195,201
430 DATA 209,240,53,173,118,195,201,210
440 DATA 240,46,173,118,195,201,211,240
450 DATA 39,173,118,195,201,212,240,32
460 DATA 173,118,195,201,213,240,25,173
470 DATA 118,195,201,214,240,18,238,32
480 DATA 208,173,17,208,9,16,141,17
490 DATA 208,173,127,195,141,21,208,96
500 DATA 238,118,195,173,124,195,141,21
510 DATA 208,96,169,4,141,120,195,96
520 DATA 173,118,195,41,248,41,247,141
530 DATA 118,195,160,239,185,255,59,153
540 DATA 0,60,185,223,61,153,224,61
550 DATA 185,239,60,153,240,60,136,192
560 DATA 0,208,233,206,121,195,206,122
570 DATA 195,165,1,41,254,133,1,172
580 DATA 121,195,185,0,160,141,0,60
```

Programming: Amstrad CPC

Spooler

Simon T Goodwin

This program for the Amstrad CPC micros provides three new Basic commands to allow data to be transferred easily between a tape deck/-disc drive and a printer or the screen. The commands are as follows:

:Spool,filename takes an *Ascii* file from tape or disc and dumps it to the screen without destroying any program currently in memory. Files up to 41K long can be dumped.

:Open and *:Close* direct output from printer to tape or disc. *:Open* switches on the facility and *:Close* resets to normal.

These two commands are very useful for converting non-standard text files to the universally used Ascii format. For example, some assemblers save text in a compressed form that is not compatible with word processors. If you send an assembler file to the printer after issuing the *:Open* command the text will be saved to tape/disc in a form that can be used by most word processors.

```
10 REM ******************************
20 REM *    TAPE/DISC SPOOLER       *
30 REM ******************************
40 :
50 MEMORY 41999
60 count=0
70 FOR n=42000 TO 42220
80 READ a$
90 POKE n,VAL("&"+a$)
100 count=count+VAL("&"+a$)
110 NEXT
120 IF count<>23833 THEN PRINT "DATA ERR
OR.":END
130 CALL 42000
140 PRINT "COMMANDS INITIALISED"
150 :
160 DATA 00,00,00,00,01,1E,A4,21
170 DATA 10,A4,CD,D1,BC,C9,29,A4
180 DATA C3,37,A4,C3,77,A4,C3,90
190 DATA A4,53,50,4F,4F,CC,4F,50
200 DATA 45,CE,43,4C,4F,53,C5,FE
210 DATA 01,C2,AD,A4,DD,6E,00,DD
220 DATA 66,01,7E,47,C5,23,5E,23
230 DATA 56,EB,C1,11,F8,07,CD,77
240 DATA BC,D2,AD,A4,3E,42,CD,1E
250 DATA BB,C4,C9,A4,CD,89,BC,D2
260 DATA 73,A4,CD,80,BC,FE,8A,28
270 DATA 05,CD,5A,BB,18,E6,CD,BE
280 DATA A4,18,E1,CD,7A,BC,C9,3E
290 DATA C3,32,2B,BD,32,31,BD,3E
```

```
300 DATA 95,32,2C,BD,32,32,BD,3E
310 DATA BC,32,2D,BD,32,33,BD,C9
320 DATA 3E,CF,32,2B,BD,32,31,BD
330 DATA 3E,1B,32,2C,BD,3E,88,32
340 DATA 2D,BD,3E,44,32,32,BD,3E
350 DATA 88,32,33,BD,C9,21,CD,A4
360 DATA 06,0A,CD,B6,A4,C9,7E,CD
370 DATA 5A,BB,23,10,F9,C9,3E,0D
380 DATA CD,5A,BB,3E,0A,CD,5A,BB
390 DATA C9,CD,18,BB,C9,52,53,58
400 DATA 20,45,52,52,4F,52,2E,00
410 DATA 00,00,00,00,00,00,00,00
420 DATA 00,00,00,00,00,00,00,00
430 DATA 00,00,00,00,00,00,00,00
440 :
450 :
```

```
460 '¦POOL,[filename]
470 'Takes a file from tape/disc
480 'and dumps it to screen.
490 '
500 '¦PEN and ¦LOSE
510 'Directs output from printer to
520 'disc/tape:
530 'For example :
540 '
550 '10 ¦PEN
560 '20 OPENOUT "filename"
570 '30 LIST #8
580 '40 CLOSEOUT
590 '50 ¦LOSE
600 '
```


Proc Find

Phillip Lavender

When designing a large program using procedures, it is easy to lose track of where a procedure is in the listing.

This program when called will produce a Superbasic listing (in the form of a file for merging with the original program) of all the procedures and functions in a program along with a line number reference.

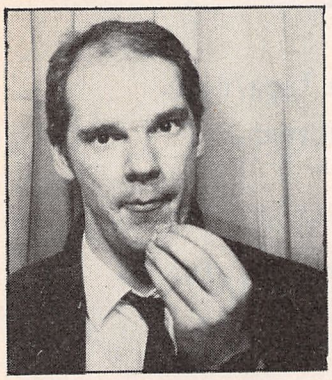
You must enter a filename for the new file along with a starting line number and an increment.

When the new file is created load in the old program and merge the new file.

```
10 REMark Proc_cat procedure (C) 1986  P.Lavender.
20 :
30 proc_cat
40 :
100 DEFine PROCedure proc_cat
110 REMark  (C) P.Lavender 1986 (written for QZ-NET)
120 CLS#0
130 INPUT#0,'Filename for PROCing (must be in mdv1_)'!file$
140 INPUT#0,'Filename to be created for MERGing (on mdv2_)'!procfile$
150 INPUT#0,'Starting linenumber of MERGE file'!n
160 INPUT#0,'Increment number for MERGE file'!increment
170 PRINT#0,'PROCESSING'
180 OPEN_IN#5,'mdv1_'&file$
190 OPEN_NEW#6,'mdv2_'&procfile$
200 PRINT#6;n!'REMark    PROC_CAT    (C) 1986 P.Lavender.'\
210 n=n+increment
220 REPeat loop
230 INPUT#5,a$
```

```
240 IF EOF(#5) THEN EXIT loop
250 IF 'DEFine PROCedure' INSTR a$ OR 'DEFine FuNction' INSTR a$ THEN
260 space1=' ' INSTR a$
270 linenumber=a$(1 TO space1-1)
280 a$=a$(space1+1 TO)
290 space2='DEFine' INSTR a$
300 a$=a$(space2+8 TO)
310 space3=' ' INSTR a$
320 a$=a$(space3 TO)
330 name$=a$
340 PRINT#6;n!'GO TO'!linenumber!':REMark '!name$\
350 n=n+increment
360 END IF
370 END REPeat loop
380 CLOSE#6
390 CLOSE#5
400 END DEFine proc_cat
```

Programming: Peek & Poke



with Kenn Garroch

Brother to the QL

W L Pritchard of Pershore, Worcs, writes:

Q I would like your help concerning my QL and a Brother M-1109 printer. The printer works well enough except that it seems to have a mind of its own. It will, for no apparent reason, throw up an @ sign in the left hand margin and of course move everything out in that line. On other occasions it will put a capital letter in the margin and not print the line at all. There are also other odd things such as suddenly underlining everything.

My files are for *Quill* only: I have written a book and wish to print it out several times, but these hiccups waste time, paper, and ribbon.

The printer was bought from one of the high street shops, and when I told them my trouble, they replaced the machine as they thought it was faulty. Unfortunately, the replacement has the same fault but it's not quite so bad.

I enclose the settings of the printer and the QL.

A I am not an expert on QL's but I see that you are running the printer at 9600 baud. At this speed, there is a reasonable chance that transmission errors will occur. Try a slower speed such as 1200 or even 300 baud. Printing will take a little longer but it might get rid of the errors.

Game for programming

Mark Cook of 3 Squadron, 13 Signal Regt, writes:

Q I own a Commodore 64 computer and have recently become interested in machine code programming on it.

To this end I have started to write a *PacMan* style game as an exercise in machine code and using sprite and user defined graphics.

The problem I have come up against is as follows: I am using address 53279 to detect sprite to data collisions. As the dots and the borders are both made up of UDGs, there is no way of knowing which the sprite has encountered.

Is there an internal register of some sort which records the Ascii value (or screen code value) of the data with which the sprite has collided or could you think of any other way of doing this?

I would be extremely grateful if you could shed some light on this subject as I can find nothing about it in the *Programmers Reference Guide.*

A There is no internal register that holds the information you need. However, reading the screen directly is probably the best way of seeing which character has been hit. When you get a sprite/data collision look at the screen position under the sprite. The following routine should do the trick.

```
TIMS    .BYTE 0,5,10,15,20,25,30,
        35,40,45,50,55,60,65,70,
        75,80,85,90
        .BYTE 95,100,105,110,
        115,120
XPSL    .BYTE 0
XPSH    .BYTE 0 ; Two byte x pos
        of sprite
YPOS    .BYTE 0 ; Y pos of sprite
TTL     =$FB
TTH     =$FC
FCHAR   LDA XPSL    ; Get x
                    position of
                    sprite
        SEC
        SBC *28     ; Sub 28
        STA TTL
        LDA XPSH    ; Need to
                    subtract the
                    carry as well
        SBC *O      ; In two byte
                    form
        STA TTH
        CLC
        LSR TTH
        ROR TTL     ; Divide by 2
        LSR TTH
        ROR TTL     ; Divide by 2
        LSR TTH
        ROR TTL     ; Divide by 2
                    total div 8
        LDA VPOS    ; Get y
                    position
        SEC
        SBC *54     ; Sub 54
        TAX
        LDA TIMS,X  ; Look up
                    times five
                    value
        CLC
        ADC TTL     ; Add to
                    current total
        STA TTL
        LDA TTH
        ADC *O
        STA TTH
        LDA
        *<BASE      ; Screen base
                    address norm
                    1024
        CLC
        ADC TTL
        STA TTL     ; Add to total
        LDA
        *>BASE      ; Hi byte of
                    address
        ADC TTH     ; Add with
                    carry to total
        STA TTH
        LDY *O
        LDA (TTL),Y ; Read
                    character from
                    screen to
                    accum
        RTS
```

The sprite position when on screen is offset by 24 horizontally and 50 vertically so the centre of each character is x-28 and y-54. To translate this into character positions, divide by 8 and then add the value of the screen base to give the memory location. Reducing this gives the formula:

```
mem loc =
  base + ((x-28)/8)+(((y-54)/8)*40)
mem loc =
  base + ((x-28)/8)+((y-54)*5)
```

Use a look-up table for the times five and shift right three times to divide by eight. So the following program should find the character. You may need to muck around with it a little to get the result you need (and also to make it faster).

Is there anything about your computer you don't understand, and which everyone else seems to take for granted? Whatever your problem *Peek* it to Kenn Garroch and every week he will *Poke* back as many answers as he can. The address is *Peek & Poke, PCW*, 12-13 Little Newport Street, London WC2H 7PP.

Wait for Amiga

Mathew Palmer of Maidenhead, Berks, writes:

Q I am currently thinking of getting a new computer, mostly for playing games, but also for some practical applications. I have considered the Commodore 64 since many of my friends have them. I am also considering the Amiga A500 when it becomes available in the UK. Do you think it is worth buying a 64 or waiting until the 16-bit machines get a foothold in this country? Also, if I decide to get a C64 and upgrade to an Amiga when they become cheaper, would 64 programs be able to run on the Amiga in a 64 mode such as the 128 machine has a 64 mode?

A My usual advice is to never wait for a machine to appear, you could wait for ever. You are also missing out more by not having a machine than by getting an inferior model. However, the A500 sounds like a pretty good machine. According to *Popular*'s 13–19 March issue, the A500 won't appear until at least June, and will cost £587. This is only a couple of months away and it may well be worth waiting since the machine should certainly be far superior to the good old C64. The only problem is software availability. The C64 has been around so long that it's got more programs than IBM. The 16-bit machines are still new boys and so have yet to have a great deal of software under their belts.

The A500 will not have a 64 mode. Having said that, all it would take is for someone to write the appropriate software and it is perfectly possible that this would be done.

Colour Change

Darryn Lavery

This short Atari ST program running under Atari Basic allows the user to change the colours displayed to any from the pallette. To use the routine set the following variables before using *Gosub Change.*

Col – colour to be changed

Red, Green, Blue – intensity of colour (0–1000)

```
List of \CHANGE.BAS

    10      REM ST COLOUR CHANGE BY DARRYN LAVERY
    20      REM EXAMPLE
    30      COL=0:RED=220:BLUE=100:GREEN=400:
            GOSUB CHANGE
    40      END
    9999    REM ACTUAL ROUTINE
    10000   CHANGE: IF RED >1000 OR GREEN >1000
            OR BLUE >1000 THEN RETURN
    10010   POKE CONTRL,14:POKE CONTRL+2,0:POKE
            CONTRL+6,4
    10020   POKE INTIN,COL:POKE INTIN+2,RED:POKE
            INTIN+4,GREEN:POKE INTIN+6,BLUE
    10030   VDISYS(0):RETURN
```

Mouse Change

Darryn Lavery

This routine for the Atari ST alters the mouse pointer icon from an arrow to another available shape. The syntax for using the routine is *Num = icon no. : Gosub Mouse.*

The icon numbers are as follows. 0 = arrow, 1 = cursor, 2 = bee, 3 = finger, 4 = open hand, 5 = thin crosshair, 6 = thick crosshair, 7 = outline crosshair.

```
List of \MOUSE.BAS

    10      REM CHANGE MOUSE FORM BY D.LAVERY
    20      NUM=3:GOSUB MOUSE
    30      END
    1000    MOUSE:
    1010    A#=GB
    1020    CONTROL=PEEK(A#):GINTIN=PEEK(A#+8)
    1030    POKE CONTROL,78:POKE CONTROL+2,1:POKE
            CONTRL+4,1:POKE CONTRL+6,
1
    1040    POKE CONTROL+8,0:POKE GINTIN,
            NUM:GEMSYS(78)
    1050    RETURN
```

Enlarger

Robert Bennett

This program for any eight bit Atari computer will enlarge any character when run. Simply type it in and enter the character to be enlarged when prompted.

```
10 CS=57344:DIM A$(1):INPUT A$:A=ASC(A$):A=
   (A-32)*8+CS
20 PRINT CHR$(125):POKE 84,5:
   POKE 85,10:POKE 86,0
30 FOR I=A TO A+7:Z=PEEK(I):FOR S=1 TO 8:Z=Z*2
40 IF Z<255 THEN PRINT " ";:GOTO 60
50 Z=Z-256:PRINT "a";:REM INVERSE SPACE
60 NEXT S
70 PRINT  POKE 85,10:NEXT I:RUN
```

We want your programs!!

Yes, this is your chance to get rich and famous. Well, famous anyway, as *Popular Computing Weekly* is looking for contributions to the Programming pages.

What sort of thing are we looking for? You name it – anything original from games to utilities, applications and the like, written in Basic, machine code or anything else you can think of.

Programs for any computer will be considered, not just the old faithfuls (Spectrum, Amstrad, QL, Commodore, etc), so send those listings in. What we need is a working copy of the program on tape or disc, plus an accompanying article or documentation that you would anticipate going with the piece, normally not over 2000 words.

Alternatively, send in your short programs to the Bytes and Pieces page – what could be easier?

In return, we'll pay the princely sum of £25/page for the main programming pages and £10 for each Bytes & Pieces contribution we publish. Plus the fact that your name will be indelibly carved in the *Popular* Programming Hall of Fame till time immemorial. What more could any true programmer ask?

Just send your masterpieces in to **Duncan Evans, Technical Editor, Popular Computing Weekly, 12–13 Little Newport St, London WC2 7PP** and he'll assess them post haste.

More music for the ST

Mark Jenkins with new music packages from Microdeal

Bluey Hill of Lincolnshire has written in asking about programs for the Spectrum Plus 2, and rightly points out that the Ram Music Machine combines a little sequencing with a little sampling and a little drum-playing for around £45.

However, elsewhere in this issue you'll find a review of the new Cheetah Spectrum Midi interface, and this one's worth checking out too, because it provides an eight-track polyphonic realtime sequencer with step time editing, velocity and pitch bend recording, Midi and non-Midi drum machine synchronisation and so on, all for only £49.95. If you're interested, Cheetah's new address (as from April 21) is noted below.

Meanwhile, on the Atari 520ST, Microdeal has launched a budget Midi composition package which will give professional models such as Hybrid's *MidiTrack* and Steinberg's *Pro-24* a run for their money – and again, it only costs £50 or so.

Microdeal's *Super Conductor* uses the function keys to switch between the ten song edit buffers available to the program. Tempo, notes and controllers for all these songs are stored in memory and so it's possible to play back a whole set of 10 songs with no disc loading time at all (play entire 'set' mode).

Song pointers and song position codes are sent via Midi to help other equipment such as drum machines play back these songs, and you can send on and start to drone. Echo back sends incoming data back through the Out port so you can hear what you're playing as you program tunes; system exclusive mode also allows you to store patches, samples, patterns and other data from suitably equipped Midi instruments.

Selecting I1, I2 or I3 on one of the sixteen available channels will cause the internal sound chip rather than a Midi synth to play tracks from your composition, although defining the sounds used is rather a complex procedure. Positions in the song are defined by bar, beat and click for any operation you want to carry out including copying, merging and deleting sections.

Playback tempo can be changed at will but the only way to program changes in tempo during a song is to program two separate songs and use 'play entire set' mode. The undo mode will save data which you accidentally wiped out, while 'save as' will file away a song with an appropriate name.

You can append blocks and even split blocks, which is handy if you want to work out two different endings for a piece; filter block will remove one particular type of data – such as velocity data – from a certain section of the piece, and it's also possible to remove all notes between certain pitch values. Notes can be quantised to the closest beat and tone length can also be changed to alter the general feel of the piece from staccato to legato.

Every note and control change in a block can be changed using edit block, which pulls down a large grid-like display of data. Quite rightly, the company points out that features such as these are not found in many software packages costing twice as much as *Super Conductor.*

The *Super Conductor* handbook contains comprehensive instructions plus a copy of the Sequential Midi specification, the 'bible' of Midi software writers. However, the beauty of the program is that you don't need to know too much about Midi to use it, and that you can get away with working on the simple song pages for most of the time.

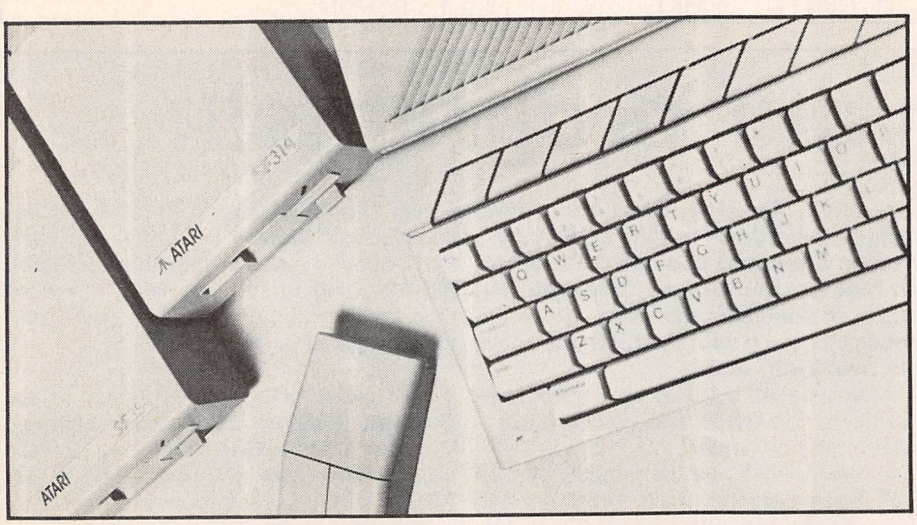
If you do want to carry out more complex editing functions, *Super Conductor* has the ability to let you do them. However, I have to admit that I haven't got very deeply into these functions as yet, and so will present an update on the program in the near future.

In the meantime, it would be wise to get in touch with Microdeal to find out the name of your nearest *Super Conductor* dealer. On an initial inspection, it looks twice as powerful as Hybrid's *EZ-Track* or Steinberg's beginners' package, both intended as easy ways into the world of midi. *Super Conductor* seems just as easy, but twice as powerful.

Tigress Designs has announced *Iconix,* a sequencer for the Atari 520ST written by System Exclusive. It sells for £249.95 and combines graphic displays with straightforward realtime recording using the Gem environment.

Recordings are made using "groups" varying in length from one bar to the whole of the computer's memory. Each group uses all 16 Midi channels and groups can be chained in any order. Up to eight group chains can be played back simultaneously to create 128 track compositions. The program will initially be available by mail order and will be introduced through various retailers later; a monochrome monitor and a 520ST with single disc drive, plus Midi synths, are all you need to run the program.

Chris Palmer, Tigress Designs, 25 Burmester Road, London SW17 0JL, 01-946 7870.
Microdeal Customer Queries, Box 68, St Austell, Cornwall PL25 4YB, 0726 65422.
Cheetah Marketing Ltd, Norbury House, Norbury Road, Fairwater, Cardiff CF5 3AS, 0222 555525.



The Atari ST: a new budget package from Microdeal

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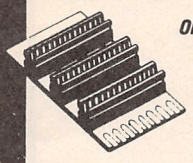

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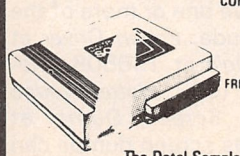

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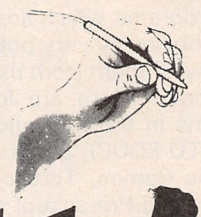

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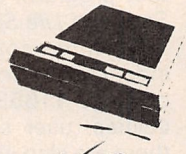

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A new way to get software

Graham Edkins reviews some of the programs available through Compunet

Compunet offers thousands of programs which can be downloaded into your micro. In the main these can be separated into three categories; commercial, free and Compunet specific software.

Commercial software games are all indexed from page 231. There are hundreds of them sub-divided into Arcade Games, Arcade Adventure, Adventure, Board and Logic, Simulations, Armchair Sport, Strategy and War and finally Music and Graphics. This way of buying programs has the advantage of offering a large choice which is never 'out of stock'.

Also because you are providing your own tape or disc the price is in most cases below what you would normally pay especially in the case of disc users who can download these programs, whether or not they are generally available on disc, without having to pay any more than tape users.

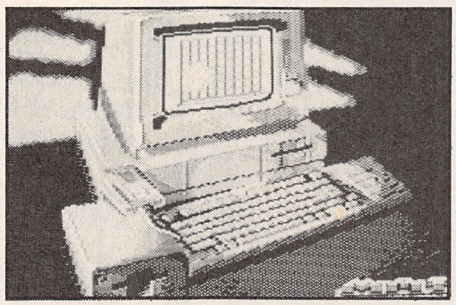
Software houses providing tele-software can reach a wide audience while having no packaging or duplicating costs and paying only the standard distribution commission to Compunet. The downloaded software will only run while the modem that downloaded it is in place thus providing an excellent anti-piracy device.

Programs which are free to download are obviously very popular and there are many of them from users and the public domain. There are loads of free programs in the education directory alone (GOTO EDUC), these are separated into Logic Games, Tertiary, Secondary, Primary and Pre-school sections. They are all in the public domain, written in Basic and can be listed thus being useful material for programming beginners to learn from and adapt. Those that are particularly worth downloading are *Caves, Star Trek, US Civil War* and *Eliza* which is the famous 'intelligent' psychiatrist program, all on page 535 and *Life Style* and *Life Span* on page 965.

Other free software can be found in the Independent Compunet Club (GOTO ICC) on page 116539. Apart from their free utilities, user software and 1520 area there are also eight free adventures from Club 64. Members of the Independent Commodore Products Group (ICPUG) can download most of their library of C64 programs and even non-members can enter the general software area on page 113281 where they will find free programs from Eddy Carroll and S Hants.

There are also many programs, demos, graphics, etc, provided free by users and software houses, both in the Jungle and the Showcase area (GOTO TALENT). There are so many that space and the transient nature of many of the programs does not allow me to describe them all here, so the best thing to do is look through them yourself regularly for the latest uploads. It can take a while but the result is always worthwhile. At a later date I shall endeavour to tell you of some of the very best available.

> *"Software houses providing tele-software can reach a wide audience, but the downloaded software will only run while the modem that downloaded it is in place"*



From the Compunet Files

The third area of programs is the Compunet specific ones. In this group are many ingenious ideas to increase the facilities of the Commodore modem as well as communication packages. The most used of this group has to be 'CNBoot'. This is a 'duckshot' driven menu which loads in the various comms packages for the modem. It is not necessary to use it but it's very convenient especially when loading the Compunet code because it also loads the disc Dos at the same time. For this free program GOTO CNBOOT.

The text frames on the network are often quite complex low-res graphics or text following a graphic header. Producing such frames to upload can be a slow process when using just the keyboard with the modem's editor but a program called *Editor Enhancer* changes all that. It's a low-res graphic package which works in conjunction with the editor offering line, fill, wash, copy and, most importantly for text headings, large characters. If you GOTO ENHANCE, you will also find a large selection of free fonts for use with the program.

Another area of the modem's code which has received a lot of attention is the *Print* option, this only works with a standard Commodore Printer (MPS801 or the like) and then leaves spaces between each line, upsetting the effect of a good low-res graphic. It also is limited to printing one frame at a time from the editor. These restrictions are of no consequence for most people but improvements can be made.

The best all round package to overcome these points is the *Compuprint* program, offering output to Commodore 1520's, Epson compatibles and a choice of normal or graphic, large or small output for the standard Commodore printers and also the capability to dump the whole editor to paper without any further user actions.

Compuprint is on page 137379, other programs which have one or more of the above features include; *Epson Driver* at 182512, *Epson Magic* at 166508, *Modem Multiprint* at 211393, *Plotter Wedge* on 155929 and *Screen Dump* at 213410, while hi-res screen dumps can be handled by *Hi-Res vs 3.0* on page 173118.

It is useful, for people who produce a large amount of text for uploading on to Compunet, to be able to transfer their word processor files to Compunet frame format, *W/P-CNET Convert* on page 126582 will do this and also allow you to add text, background and border colours as you wish, *Editor Xtra* will convert files between the editor and a word processor in either direction and while you are on or off line, for this program GOTO XTRA.

Communications software for the Commodore modem is well covered with a Viewdata package on page 170, a basic Teletype program at 209137 and user to user software (GOTO UU). The program which has impressed me most of late is Ariadne's *Scrollback TTY* on page 209113. This is a Teletype program to access 1200/75 baud scrolling bulletin boards and services like Telecom Gold.

The feature that makes this program stand out is the 22.5K buffer which can be scrolled through either direction on or off line. The user's entry is shown in one window, the computer output is displayed in a second window and the reviewed text is scrolled through a third which appears when in use. Text and screen colours can be set by the user as can parity etc. Disc inputs and outputs handle text and password storage.

To end I'll answer the question that I am most frequently asked: "How do I join Compunet?" For full details contact the database at Compunet Teleservices Limited, 7–11 Minerva Road, Park Royal, London NW10 6HJ, 01-965 8866.

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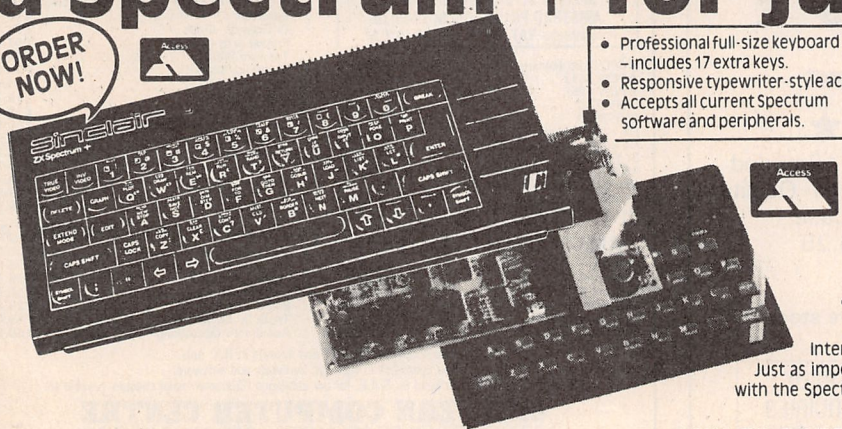

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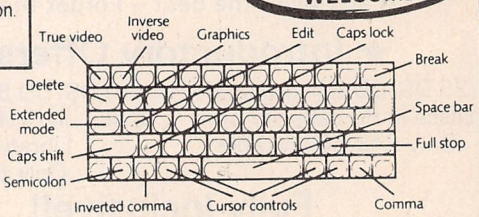

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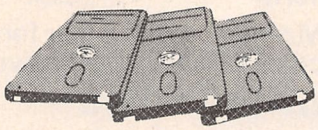

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SINCLAIR QL JM ROM plus £100 worth of software for £125. Commodore Plus/4 without p.s.u. £39. Oric 1 48K without p.s.u. £29. Tel: 01-459 1351. Evenings/weekends.

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New Releases

John Cook looks through this week's new arrivals

Amstrad CPC

Program *Head Over Heels* **Type** Arcade Adventure **Price** £8.95 **Supplier** Ocean, Ocean House, 6 Central Street, Manchester M2 5NS.

See Spectrum listing for comment.

Program *Trivial Pursuit – Baby Boomer Edition* **Type** Trivia Quiz **Price** £7.95 **Supplier** Domark, 24 Hartfield Road, Wimbledon, London SW19 3TA.

Extra questions to be loaded into *Trivial Pursuit,* the original version, for those yuppie Baby Boomers. New categories are Broadcasting, Stage & Screen, Nightly News, Publishing, Life & Times and a music section entitled RPM. A silver spoon is not supplied with the package.

Amstrad PCW

Program *Datastore* **Type** Application **Price** £39.95 (including P&P) **Supplier** Digital Integration, Kelsey House, Barns Road, Budleigh Salterton, Devon EX9 6HJ.

Competent looking database package, which is dedicated, 'To Sarah, who has been so patient'. Is the *Search* facility really that slow?

Program *AMX Mouse* **Type** Wimp Environment **Price** £79.95 **Supplier** Advanced Memory Systems, 166–70 Wilderspool Causeway, Warrington WA4 6QA.

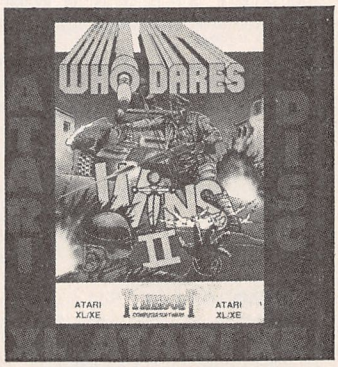
It looks expensive, but comes with a mouse, interface, and the most amazing looking software that provides a genuine Gem style environment for operating under CP/M as well as some neat desktop accessories.

If you are unlikely to upgrade your machine for a couple of years, you must take a look at this. Full review in a couple of weeks.

Atari XL/XE

Program *Who Dares Wins II* **Type** Arcade **Price** £7.95 (tape), £9.95 (disc) **Supplier** Tynesoft, Addison Industrial Estate, Blaydon upon Tyne NE21 4TE.

Commando style action reaches the Atari 8-bits.



Atari ST

Program *Karate Master* **Type** Arcade **Price** £12.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street, Sheffield S1 4FS.

After Gremlin released *Typhoon,* which although flawed, did have its good points, I said that Gremlin would certainly do better. This is their second release – and it isn't.

Programmed in Germany by Kingsoft, it's a program with an identity crisis. The packaging says *Karate Master,* the title screen says *Karate King.* Yes – it's a martial arts bash, but it's really not very good.

Mastertronic's *Ninja Mission* is cheaper, even if it wasn't more fun. Paradox's *ST Karate* and *Karate Kid II* are much more playable and *International Karate,* for all its faults, has graphics that make *Karate Master* look like it was running on a ZX81. Which makes you wonder why anyone should buy this one at all.

Program *GFA Basic Compiler* **Type** Utility **Price** £59.95 **Supplier** Glentop Press, Standfast House, Bath Place, High Street, Barnet, Herts EN5 5XE.

Pick of the week

Victorious conquests

Program *Colonial Conquest* **Type** Strategy **Micro** Commodore 64 (Atari XL/XE) **Price** £24.99 (disc only) **Supplier** SSI, via US Gold, Units 2/3, Holford Way, Holford, Birmingham B6 7AX.

I would guess that along with *Monopoly* and *Scrabble, Risk* must rate as one of the best-selling family board games of the last 20 years or so.

Played out on a global map, many happy Christmases have been spent vying for world domination among the cold turkey and crumpled wrapping paper which, although lacking the subtlety and undiluted viciousness of, say, *Diplomacy,* were still great fun.

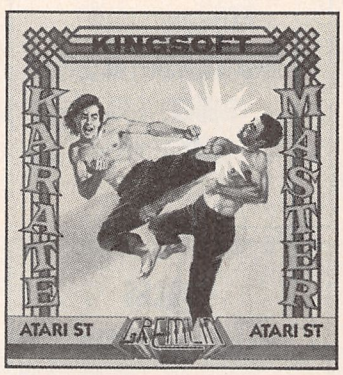
Well, now you can play a game of similar ilk on your computer, with one added advantage. It's miles better.

Colonial Conquest, from those nice SSI people, divides the world up into *Risk/Diplomacy* style areas and six major powers (England, France, Germany, Russia, Japan, USA) together with many neutrals, all set around the turn of the century.

Play can be anything from all computer controlled, all six neutral (ie, they only defend themselves . . . makes for a bit of a boring game), to a full six human player version which, although we haven't tried yet, would be marvellous. In any case the computer controlled opponents play a good game (you vary the skill level of each from 0–9), albeit playing a long term strategy.

There are three scenarios – one called Race of the Colonies, where you all start in your home territories and go for grabbing those colonial goodies; the 1884 scenario, where many of the colonies have already been settled; and the 1914 scenario, where war is just about to break out. The rules are relatively simple. At the start of each year you build armies and navies (depending on how much money you have in the bank), then spend the next four moving them about. The more territories you own, the more revenue you get . . . therefore the more military you can build. You then spend the next four seasons moving around the place, trying to occupy more land or making war on whoever takes your fancy.

Well, it's a bit more complicated than that – but the system won't take much getting used to, honest. There's not much that could be bettered – maybe slightly better graphics (although the ST version will solve that) and some rules dealing with supply – but *Colonial Conquest* is certainly the best game of its type on the market right now.



Compiler for the much acclaimed *GFA Basic* package on the ST.

You write your program in *GFA Basic,* compile it with this package, and at the end of the process – itself fairly painless, you end up with a file of 68000 object code that will run independently of both the *GFA Basic Interpreter* and the *Compiler* itself, running much faster than before. Good, eh? Full review next issue.

Program *Gold Runner* **Type** Arcade **Price** £24.95 **Supplier** Microdeal, Box 68, St Austell, Cornwall PL25 4YB.

Quite simply the most impressive shooter for the ST so far.

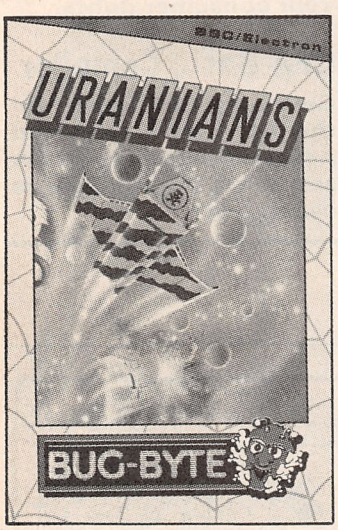
Featuring super fast scrolling of the detailed backgrounds, great music and above all superlative gamesplay. Author Steve Bak is soon going to be very hot property indeed.

BBC B

Program *Hunkidory* **Type** Arcade **Price** £2.99 **Supplier** Bug Byte, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.

Number of screens, 20. Number of different types of aliens, 21. Crystal Palace 12, Liverpool 0. I think that's what they call a fantasy platforms and ladders style game.

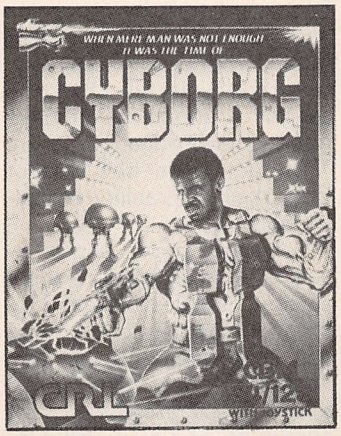
Program *Uranians* **Type** Arcade **Price** £2.99 **Supplier** Bug Byte, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.



Commodore 64

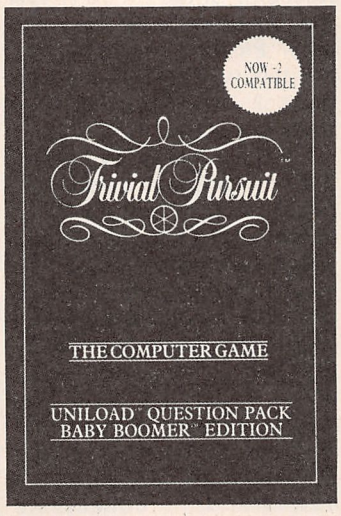
Program *Cyborg* **Type** Arcade Adventure **Price** £8.95 (tape), £14.95 (disc) **Supplier** CRL, 9 King's Yard, Carpenter's Road, London E15 2HD.

The long wait ended – unfortunately in disappointment. Scrappy *Nexus* style game that would only appeal to hardened arcade adventurers.



Program *Trivial Pursuit Baby Boomer Edition* **Type** Trivia Quiz **Price** £7.95 **Supplier** Domark, 24 Hartfield Road, Wimbledon SW19 3TA.

See Amstrad CPC listing for comment.



Electron

Program *Hunkidory* **Type** Arcade **Price** £2.99 **Supplier** Bug Byte, Argus Press Software, Victory House, Leicester Place, London WC2H 7NB.

See BBC listing for comment.

Program *Uranians* **Type** Arcade **Price** £2.99 **Supplier** Bug Byte, Victory House, Leicester Place, London WC2H 7NB.

Straightforward unsophisticated shooty shooty that does not involve collecting Western hostages or firing missiles at merchant shipping.

PC and Compatibles

Program *Infiltrator* **Type** Arcade **Price** £24.95 **Supplier** US Gold, Units 2/3, Holford Way, Holford, Birmingham.

Quality combination of zapping and arcade adventure which although it suffers from the PC's lack of suitable colours, still retains most of the playability. Chances are you'll like it.

Program *K-Spread 2* **Type** Application **Price** £79.95 **Supplier** Kuma Computers, 12 Horseshoe Park, Pangbourne, Berkshire RG8 7JW.

Gem based spreadsheet for financial minded PC owners.

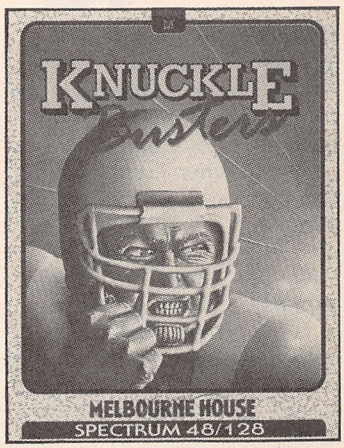
Spectrum

Program *Hit Pak* **Type** Compilation **Price** £9.95 **Supplier** Elite Systems, Anchor House, Anchor Road, Aldridge, Walsall, West Midlands WS9 8PW.

Program *Sigma 7* **Type** Arcade **Price** £9.95 **Supplier** Durell, Castle Lodge, Castle Green, Taunton, Somerset TA1 4AB.

Program *Knucklebusters* **Type** Arcade **Price** £8.95 **Supplier** Melbourne House, 60 High Street, Hampton Wick, Kingston Upon Thames, Surrey KT1 4DB.

Considering that the original Commodore version wholly relied on some nice graphics and an excellent sound track, as you might guess, the Spectrum conversion (although worthy) just isn't up to it.



Program *Krakout* **Type** Arcade **Price** £7.95 **Supplier** Gremlin Graphics, Alpha House, 10 Carver Street.

My deeply intellectual argument to the howls of protest that *Breakout* variants should be hitting the charts is simple. Na, na, na-na, na. (Unfortunately the imagery of the wiggling fingers on the end of the nose is lost in translation.)

Program *Head Over Heels* **Type** Arcade Adventure **Price** £7.95 **Supplier** Ocean, Ocean House, 6 Central Street, Manchester M2 5NS.

Superlative *'Knight Lore'* style arcade adventuring. If you are vaguely interested in this style of game – you simply have to buy this one.

Program *Trivial Pursuit – Baby Boomer Edition* **Type** Trivia Quiz **Price** £7.95 **Supplier** Domark, 24 Hartfield Road, Wimbledon, London SW19 3TA.

See Amstrad listing for comment.

Let bygones be bygones

Does anyone ever wonder what will be collectable memorabilia of the home computer age? I have seen toys that I used to play with when I was a young boy become much sought after, and many of these are now worth a lot of money.

These were not rare or expensive items in their day. It is just that some people collect these items and the law of supply and demand forces up the price of scarce items.

Items do not have to be very old to be worth money. Original records of singers who have died, such as Marc Bolan, Buddy Holly etc, limited editions or demo records or those made by obscure and defunct groups (especially if the artists are now in a more famous group) can reap the owners a pleasant windfall.

Sometime soon, I am sure that some home computer enthusiast will start advertising for old programs by a certain software writer or a firm to complete a collection. This small start could soon blossom into a demand for the rarer items, and so prices will rise as they do for any limited memorabilia that has a cult following.

Mass ownership of home computers can only be acknowledged to exist over the past five years. This would seem to limit the field for collectors, but the amount of programs that appear each month is phenomenal.

So what should you look for in your computer collection? The program in itself will probably not be worth much. It is usually the packaging that will determine the total worth. Therefore you will need the cassette inlay card, the original disc or cassette with its label intact, the instructions and, if possible, the packing material it came in (some programs were issued in nice presentation boxes with special labels).

What programs should you look for? The out-of-business, or the little produced or obscure programs will be worth hunting out. This does not preclude programs that still exist in a modified form. For instance, *Airstrike 2* was a big seller, especially since English Software started selling its wares in America. But how many intact version one programs still exist? Atari DOS 1, which was never seen over here (except in some very early machines), and has probably been long overwritten to DOS 2.5 by the owners, will be worth looking out for.

Likewise, original editions of *Letter Perfect, Wordstar* etc, which are now into their umpteenth version, could fetch a good price if they are early editions.

The Scott Adams adventure series has undergone a couple of inlay card changes, and the limited Gold Edition must be worth something, even though it would be kept for its intrinsic value alone.

Similarly, a software firm called Crystal disappeared a few years ago. Its programs had good concepts but were riddled with programming errors, some so silly that the programs should never have got to the production stage. This fact does not detract from their desirability as collectable items.

Reference books and manuals could also become valuable over the years, especially those forming a series. Even this magazine, in time, may net you a small fortune. Have a look in *Exchange and Mart* sometime and you will find lots of ads for past issues of such weekly publications as *Popular Wireless.*

Let us not forget the hardware around which all these items have built up. Remember the Exidy Sorcerer? The Nascom? Or the UK 101? Will the Spectrum ever be valuable? Personally I think not, but this was said of the candlestick telephone at one time! Only time will tell.

I will conclude by saying that any programs you now possess could pay you over and over in years to come if you take care of them. You may think that this article is silly, but how many of you have seen Corgi and Dinky toys fetch high values at auctions? These are toys you may have played with not that long ago. Even now, *Rupert The Bear* books are starting a new trend in collectable items.

G M Hutchinson

NEXT WEEK

Please note, that because of the Easter holiday, next week's issue will be a double issue, dated April 17–30. However, we're not asking you to fork out double the price – it'll still be 50p.

Special Supplement Commodore 64

The C64 may be getting on a bit, but there are still plenty of new products being released. Among our supplement features, reviews of the latest version of Geos; and Rainbird's *Advanced Art Studio.*

The supplement also includes an Amiga section, with a preview of Amiga *Starglider.*

Laws of Computing

One week later than promised, but our series definitely starts next week, with a feature on your consumer rights.

GFA Basic Compiler

Glentop's GFA Basic for the Atari ST is fast and powerful enough – now see what its compiler is capable of!

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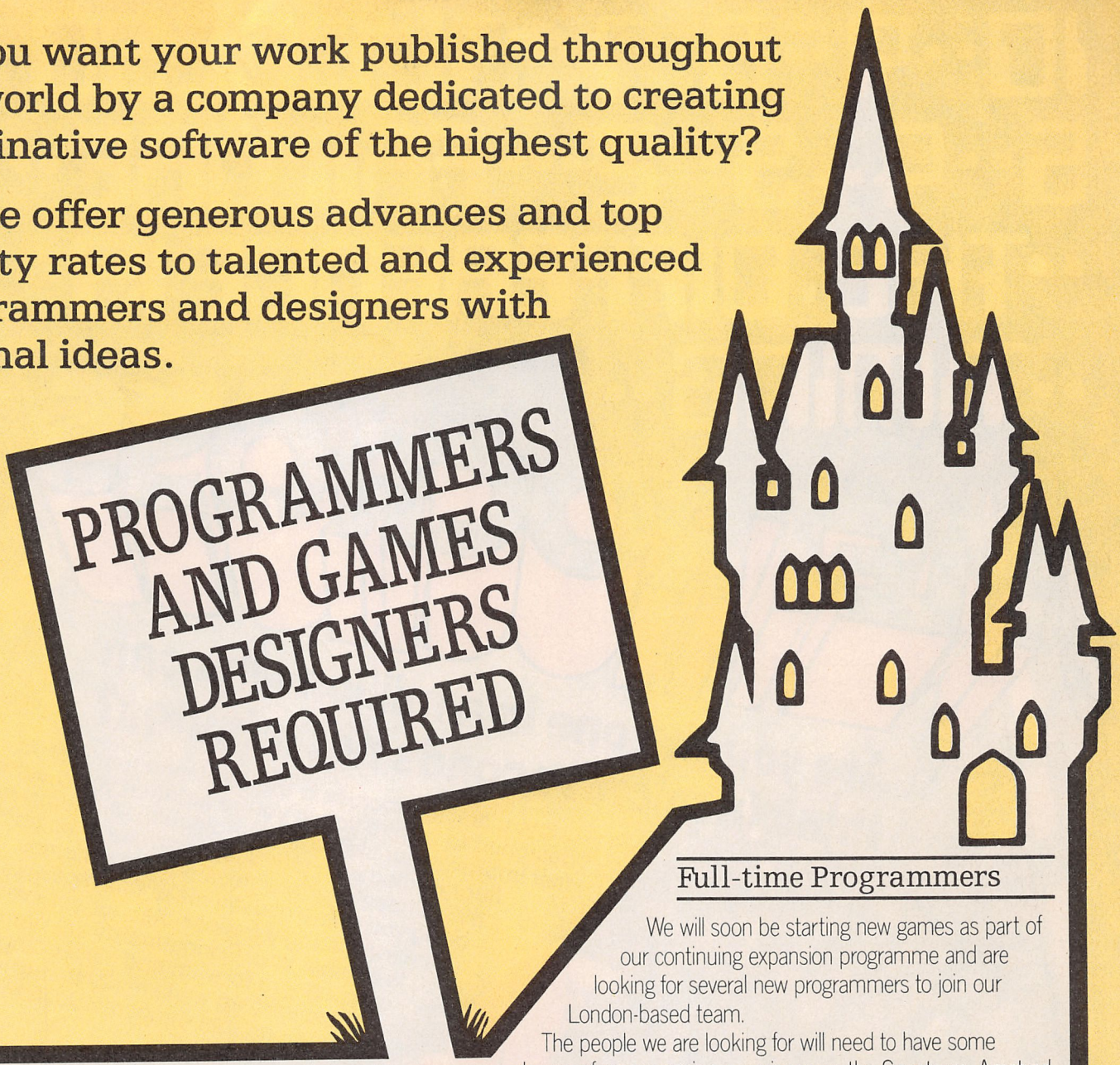

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We will soon be starting new games as part of our continuing expansion programme and are looking for several new programmers to join our London-based team.

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Screenshots are from original Arcade game.

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	Disk	£14.99
Spectrum	Cassette	£8.99
Atari ST	Disk	£24.99

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